

BULLETIN
of
TEXAS TECHNOLOGICAL COLLEGE

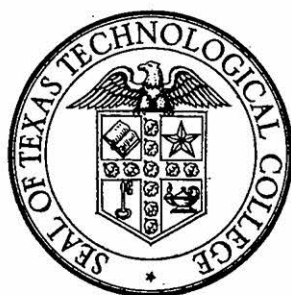
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December, 1958

No. 9

THE SCHOOL OF
ARTS AND SCIENCES

1958-1959



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FACTS ABOUT TEXAS TECH

HISTORY: Founded 1923 by 38th Texas Legislature, as a state-supported coeducational college. First students enrolled, Sept. 30, 1925. Original student body, 1,043; now over 9,000. College plant valued at \$1,424,000 after one year's operation; by end of 1958, value estimated at \$29 million.

LOCATION: Within corporate limits of Lubbock, a city of approximately 140,000 — medical, cultural, industrial, and agricultural center for the South Plains area. Elevation — 3,200 feet.

SCHOOLS: Agriculture, Arts and Sciences, Business Administration, Engineering, Home Economics, and Graduate.

BUILDINGS: More than 50 permanent type buildings including four new men's dormitories. Under construction — classroom and office building, new textile engineering building.

ACREAGE: Main campus contains 2,008 acres; 1,600 used as an experimental farm. College also operates 5,800-acre PanTech Farm near Amarillo.

TABLE OF CONTENTS

Aims of School	9
How To Use This Bulletin	9
College Calendar	10-11
Instructional Schools and Departments of the College	12
The School of Arts and Sciences	
Course Requirements	13
Degrees and Curricula	13-21
Teacher Education	21
Teaching Certificates	21-25
Bilingual Secretarial Program (French, German, Spanish)	25-26
Latin American Studies	26
Organization of the School	26-27
Special Course Charges	27
Description of Courses by Departments	
Biology (Bacteriology, Entomology, Zoology)	28-31
Chemistry (Chemical Engineering)	32-35
Education and Philosophy	36-44
English	45-48
Foreign Languages (French, German, Greek, (Latin, Spanish)	50-52
Geology (Geography)	53-55
Government (Pre-Law)	56-58
Health, Physical Education and Recreation	
Men	59-63
Women	64-67
History, Anthropology and Sociology	68-71
Journalism	72-73
Mathematics (Astronomy)	74-76
Music	77-84
Physics	85-86
Psychology	87-90
Speech	91-94
Biblical Literature	94
College Board of Directors	95
Arts and Sciences Faculty Emeriti	95
Faculty of the School of Arts and Sciences	95-104

FINE ARTS



Musical training offers group and individual experience.



Rhythm, balance, and controlled motion in modern dance.

LIBERAL ARTS



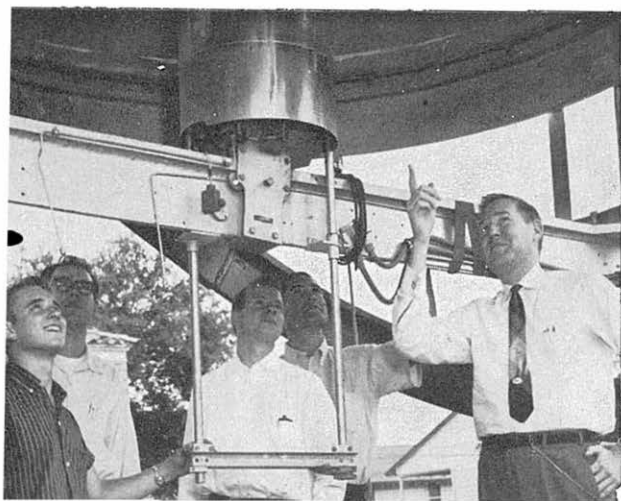
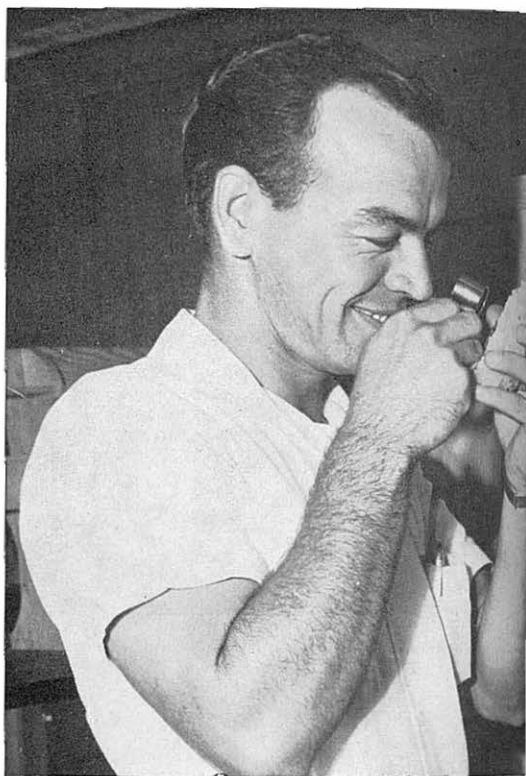
A coed at work in foreign language laboratory.



Child responds to testing in speech correction clinic.

PHYSICAL SCIENCES

Examining mineral fragments with magnifying lens.



*Texas Tech's solar furnace,
fifth largest in the world.*

ACTIVITIES



The marching band contributes to school spirit.

Individual and team sports are a part of physical education training.





*Dean
R. C. Goodwin*



*Assistant Dean
S. M. Kennedy*



*Mrs. Kathryn S. Durham,
Administrative Assistant*

THE SCHOOL OF ARTS AND SCIENCES

The American tradition of public and higher education is a matter of common knowledge, but comparatively few recognize its full significance. Not the least of the inherent rights of the student within this system is his privilege to select the areas of study which he may desire to follow.

Experience has demonstrated, however, that certain studies are fundamental, not only as a base from which to explore more definitive realms of knowledge, but as a source of personal satisfaction and enjoyment. These studies are to be found among those offered by the School of Arts and Sciences.

How To Use This Bulletin

The Bulletin of the School of Arts and Sciences should be used in conjunction with the most recent General Information Bulletin of Texas Technological College. Each student is held responsible for familiarizing himself with the content of both his **School bulletin** and the **General Information Bulletin of the year he enters the College**.

Detailed information is given in this bulletin on the School of Arts and Sciences. Reference is made also to general College regulations and many other topics; i.e., admissions, advanced standing, scholar-

ships, general degree requirements, which are detailed in the General Information Bulletin, but to which ready and frequent reference is needed by the arts and sciences student.

The General Information Bulletin contains detailed information on all aspects of the College which might be of concern to any student. Specific information concerning academic programs and course offerings for the various schools is not included.

The Table of Contents in each of the above-listed bulletins will serve as a guide in finding desired information.

COLLEGE CALENDAR 1959-1960*

1959

Long Session 1958-1959

SPRING SEMESTER

Jan. 27. Tuesday, 8 A.M. Spring semester begins. Entering freshmen assemble in C101.

Jan. 29-31. Thursday-Saturday. Registration.

Feb. 2. Monday, 8 A.M. Classes begin.

Mar. 25. Wednesday, 5 P.M. Mid-semester reports due at the Registrar's Office.

Mar. 26. Thursday, 10 P. M. Classes dismissed for Easter vacation.

Mar. 31. Tuesday, 8 A.M. Classes resumed.

May 20-27. Wednesday-Wednesday. Final examinations.

May 31. Sunday, 8:30 A.M. Graduation rehearsal. 8 P.M. Baccalaureate sermon.

June 1. Monday, 8 P.M. Commencement. Spring semester ends.

1959

Summer Session 1959

FIRST TERM

June 2. Tuesday, 1 P.M. Entering freshmen assemble C101. 2-5 P.M. Begin registration.

June 3. Wednesday. Registration.

July 13-14. Monday-Tuesday. Final examinations.

July 14. Tuesday. First term ends.

SECOND TERM

July 14. Tuesday. Second term begins. 1 P.M. Entering freshmen assemble C101.

July 15. Wednesday. Registration.

Aug. 19-20. Wednesday-Thursday. Final examinations.

Aug. 22. Saturday. Commencement.

1959

Long Session 1959-1960

FALL SEMESTER

Sept. 14. Monday. Fall semester begins. 8 A.M. All entering freshmen assemble on Administration Building Green.

Sept. 14-16. Monday-Wednesday. Freshman counseling.

Sept. 16-19. Wednesday-Saturday. Registration.

Sept. 21. Monday, 8 A.M. Classes begin.

Sept. 30. Wednesday. 10-12 A.M. Student Convocation. Classes dis-

missed. Selection of class officers.

Nov. 7. Saturday. 5 P.M. Mid-semester reports due at Registrar's Office.

Nov. 25. Wednesday, 10 P.M. Classes dismissed for Thanksgiving holidays.

Nov. 30. Monday, 8 A.M. Classes resumed.

Dec. 19. Saturday, 12 Noon. Classes dismissed for Christmas holidays.

1960

Jan. 4. Monday, 8 A.M. Classes resumed.

Jan. 16-23. Saturday-Saturday. Fi-

nal examinations.

Jan. 23. Saturday. Fall semester ends.

1960**SPRING SEMESTER**

Jan. 26. Tuesday, 8 A.M. Spring semester begins. Entering freshmen assemble, C101.

Jan. 28-30. Thursday-Saturday. Registration.

Feb. 1. Monday, 8 A.M. Classes begin.

Mar. 16. Wednesday. 5 P.M. Mid-semester reports due in Registrar's Office.

Apr. 14. Thursday, 10 P.M. Classes dismissed for Easter holidays.

Apr. 19. Tuesday, 8 A.M. Classes resumed.

May 18-25. Wednesday-Wednesday. Final examinations.

May 29. Sunday. Baccalaureate sermon.

May 30. Monday. Commencement. Spring semester ends.

1960**Summer Session 1960****FIRST TERM**

May 31. Tuesday. 1 P.M. Entering freshmen assemble, C101.

May 31-June 1. Tuesday-Wednesday, Registration.

July 11-12. Monday-Tuesday, Final examinations.

July 12. Tuesday, First term ends.

SECOND TERM

July 12. Tuesday, 1 P.M. Entering freshmen assemble, C101.

July 12-13. Tuesday-Wednesday. — Registration.

Aug. 17-18. Wednesday-Thursday, Final examinations.

Aug. 20. Saturday. Commencement. Second term ends.

MAJOR AREAS OF STUDY

Agriculture

Agricultural Economics
Agricultural Education
Agricultural Engineering
Agricultural Science
Animal Industry
Crops
Dairy Husbandry
Entomology
Horticulture
Park Management
Poultry Husbandry
Range Management
Soils

Arts and Sciences

Anthropology
Art
Bacteriology
Biology
Botany
Chemistry
Elementary Education
English
French
Geology
German
Government
Health and Physical Education
History
Journalism
Mathematics
Music
Music Education
Philosophy
Physical Education
Physics
Piano
Pre-Law
Pre-Medical
Psychology
Public School Music
Recreation
Science
Secondary Education
Social Science
Sociology
Spanish

Speech Correction
Speech
Voice
Zoology

Business Administration

Accounting
Advertising
Business Education
Economics
Finance
Industrial Management
International Trade
Marketing
Office Management
Personnel Management
Pre-Legal
Public Administration
Retailing
Secretarial Administration
Traffic Management

Engineering

Advertising Art and Design
Architecture, Construction or Design
Chemical Engineering
Civil Engineering
Electrical Engineering
Engineering Physics
Industrial Engineering
Mechanical Engineering
Petroleum Engineering
Textile Engineering

Home Economics

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

Interdepartmental

Bilingual-Secretarial
Latin American Area Studies

INSTRUCTIONAL SCHOOLS AND DEPARTMENTS

Agriculture

Agricultural Economics
Agricultural Education
Agricultural Engineering
Agronomy
Animal Husbandry
Dairy Industry
Horticulture and Park Management

Arts and Sciences

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

Business Administration

Accounting
Business Education and
Secretarial Administration
Economics and Finance
Management
Marketing

Engineering

Architecture and Allied Arts
Chemical Engineering
Civil Engineering
Electrical Engineering

Industrial Engineering and
Engineering Drawing
Mechanical Engineering
Petroleum Engineering
Textile Engineering

Home Economics

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

Graduate School

Degrees offered:
Master of Arts
Master of Business
Administration
Master of Education
Master of Science
Master of Science in
Agriculture
Master of Science in Chemical
Engineering
Master of Science
in Civil Engineering
Master of Science in
Electrical Engineering
Master of Science
in Mechanical Engineering
Master of Science in
Home Economics
Doctor of Education
Doctor of Philosophy

Reserve Officers Training Corps

Air Force
Army

Extension

Correspondence Courses
Extension Classes

THE SCHOOL OF ARTS AND SCIENCES

Courses in the School of Arts and Sciences are taken by all students of the College, indicating the fundamental nature of this work in the process of securing an education. Courses in the liberal arts and sciences furnish a necessary background and may serve as a guide in the development of a student's program, particularly for one who comes to college without a firm conviction concerning the plan he expects to follow.

The work offered in Arts and Sciences 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 sciences, the fundamental laws of the universe. It enables the student to broaden his concepts and by liberal education attain values which last a lifetime.

Entering freshmen are expected to follow the program outlined below during their first year in college:

1. English composition 6
2. Mathematics, foreign language, science or history 18
3. Electives, if not included under 2 above 6
4. Physical education, band, or basic ROTC* 2-4
- Total for both semesters of freshman year 32-34 hours

The entering freshman will develop his program in conference with an academic adviser to whom he is assigned for his first year in college. The student will report to his adviser for such individual conferences or group meetings as may be desired for the purpose of orienting himself with academic regulations and procedures, curricula, and degree requirements in the student's various areas of interest.

Though advice and counsel is always available, the student should learn early in his college life to assume responsibility for his actions

and decisions. These should be based upon the following generalizations.

Required freshman courses should be taken during the freshman year and not postponed. During the sophomore year the student should take English, the second year of physical education, band or basic air or military science, and remove all unsolved freshman requirements. No student will be classified as a senior unless he has completed four separate semesters of physical education, basic air or military science, or band. Furthermore, students who postpone taking required freshman subjects until the senior year must 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.

From 6 to 12 semester-credit hours of advanced ROTC may be counted toward degree requirements, subject to the approval of the head of the department concerned.

The normal amount of work to be 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 expressed approval of the Dean. In calculating the load, the Dean will consider all active correspondence courses, grade-point averages, and the student's extra-curricular work.

Degrees

Degrees which may be obtained in the School of Arts and Sciences are: Bachelor of Arts, Bachelor of Science, Bachelor of Science in Education, and Bachelor of Music.

The requirements for the first two are to be found on the pages immediately following. Requirements

*For description of Military Science courses, see General Information Bulletin.

for the Bachelor of Science in Education are to be found on Page 36 and for the Bachelor of Music on Page 77.

THE DEGREE OF BACHELOR OF ARTS

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

The minimum requirements for the Degree of Bachelor of Arts also apply to all other degrees offered by the School of Arts and Sciences unless specifically shown to the contrary. These minimum requirements are:

	Sem. Hrs.
1. English	12
2. Foreign language	6-18†
3. Mathematics	0-6*
4. Government 233-234	6
5. American history	6
6. Six hours of a social science above the freshman level other than major or minor	6
7. Laboratory science	6-14**
8. Major, minor, and electives sufficient with the above mentioned courses to total a minimum of 123 semester hours not including physical education, band or basic ROTC.	
9. Physical education, band, or basic ROTC	4-6

The selection of the major and minor fields should be made by the time the student reaches his junior

year. For the major subject he will be required to complete 24 semester hours in addition to the minimum degree requirements in that subject. In the case of a subject offered as a major in which no specific courses are included in the prescribed requirements for the Bachelor of Arts Degree, a minimum of 30 semester hours must be completed in the major subject. Eighteen hours of the major subject must be in courses of junior and senior rank. For the minor he will complete a minimum of 18 semester hours, at least 6 of which must be of junior and senior rank. All courses in the major and minor subjects must be approved by the head of the department concerned.

Not more than 42 semester hours in one subject may be counted in the requirement for the Bachelor of Arts Degree. Not more than 12 hours in Biblical history and literature may be counted; not more than 8 hours in applied music and/or music ensemble, except for students offering music as a major or minor. Courses in shorthand and typewriting may not be offered for this degree.

In the majority of cases students completing the requirements for the Degree of Bachelor of Arts will carry their major and minor work in the following departments of this School:

Biology
Chemistry
Education and Philosophy
English
Foreign Languages
(Spanish, French, German, Latin)
Geology
Government
Health, Physical Education and Recreation

† Students who had no foreign language in high school, or who repeat a language begun in high school, 18 hours. Students who had two units in the same language in high school, 12 hours in one language. Students who had 3 or 4 units in high school, 6 hours in the same language.

* If three and one-half units of mathematics including two of algebra, one of plane geometry, and plane trigonometry are accepted for admission, no further courses in mathematics are required. If three units are accepted including two units in algebra and one in plane geometry, Math. 130, 131, 133, or 138 is required.

** If two 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 two college courses are required they cannot be offered in the same subject and one course must be a physical science and one a biological science.

History, Anthropology,
and Sociology
Journalism
Mathematics
Music
Physics
Psychology
Speech

MAJORS IN OTHER SCHOOLS

Economics Major

Provision is made, however, whereby students may complete either majors or minors in departments of other schools. The Department of Economics provides excellent training for those students who desire to enter business. The combination of the more professionalized courses of economics with the liberal arts program would be of great advantage to certain students.

Art Major

Texas Technological College has two strong departments related to art. Allied Arts is associated with Architecture in the School of Engineering and the Department of Applied Arts is in the School of Home Economics. The completion of a major in these departments and the fulfilling of other degree requirements for the Bachelor of Arts Degree will provide the student with an excellent background for the enjoyment of art and its non-professionalized application. For further information, students should consult with the department heads concerned.

Other

In all cases the same regulations covering majors within this School apply to majors taken in other schools. But unless such work does constitute the major, no more than 24 semester hours in the technical or professional subjects of agriculture, business administration, engineering, and home economics may be offered, as electives, for the Degree of Bachelor of Arts.

TEACHING MAJOR

Students who expect to teach and who elect majors in subjects other than professional education may qualify for a teacher's certificate by satisfactorily completing the 24 semester hours in the Professional Education Curriculum required for the various certificates.

STUDIES PREPARATORY TO MEDICINE AND DENTISTRY

Colleges of medicine and dentistry require an applicant to present 15 units of approved work and a certificate of graduation from an accredited high school. A minimum of two years of college work is required. Many medical schools require three years of college work and some require a bachelor's degree.

The following course of study meets the usual premedical requirements. For pre-dentistry students, certain modifications may be advisable.

Freshman Year: The established freshman curriculum should include Chemistry 141-142 and Biology 133-134. The University of Texas Schools of Medicine require 6 semester hours of American history before a degree will be granted. History 231-232 fulfills this requirement and may be taken during the freshman year.

Some schools require 6 semester hours of mathematics. Mathematics 133 or 130 and 131 will fulfill this requirement.

Sophomore Year

First Semester	Credit
Chem. 231—Qual. Anal.	3
Zool. 231—Comp. Vert. Anat.	3
Phys. 141—Gen. Phys.	4
Eng. 231—Mast. of Lit.	3
Foreign Languages	3
P.E., Band, or Basic ROTC	1
	<hr/> 17

Second Semester	Credit
Chem. 232—Inorg. Chem.	3
Zool. 232—Comp. Vert. Anat.	3
Phys. 142—Gen. Phys.	4
Eng. 232—Mast. of Lit.	3
Foreign Languages	3
P.E., Band, or Basic ROTC	1
	<hr/> 17

Junior Year

First Semester	Credit
Zool. 331—Anim. Histol or	
Bact. 331—Prin. of Bact.	3
Chem. 353—Org. Chem.	5
Chem. 345—Quan. Anal.	4
Govt. 233—Amer. Govt., Org.	3
Electives	3
	<hr/> 18

Second Semester	Credit
Zool. 332—Comp. Vert. Embry. or	
Bact. 332—Prin. of Bact.	3
Chem. 354—Org. Chem.	5
Chem. 346—Quan. Anal.	4
Govt. 234—Amer. Govt., Func.	3
Electives	3
	<hr/> 18

The Degree of Bachelor of Arts for Pre-Medical or Pre-Dental Students:

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

- A. While in residence at Texas Technological College by completing the requirements outlined in this bulletin. 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 graduation from a Class A medical or dental college. The following regulations apply:
 1. Of the three years of preprofessional work, at least the junior year must be completed in residence at this College. This minimum will apply to transfers 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. Submission of 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.

The program outlined above is not designed to meet the minimum requirements of any medical school but it 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 with the Pre-Medical Adviser at each registration period. Application for admission to the professional school should be made through his office. Professional Aptitude and Admission Tests may be taken at Texas Technological College.

Studies Preparatory to Law. The usual minimum requirements for admission to standard law schools include 15 entrance units and graduation from high school plus at least three academic years (96 semester hours) of college work. Exceptions are sometimes made in the case of veterans for whom special requirements may be fixed. Many law schools now require a degree from a reputable college or university for admission, and in most cases it is recommended that a degree be completed.

The following curriculum is suggested for students who contemplate the study of law. **Freshman Year:** The prescribed freshman curriculum should be followed, but should include History 133-134 and Government 233-234. 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. **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 his adviser concerning other courses. **Junior and Senior Years.** A major and minor should be designated by the beginning of the junior year, and if a Bachelor of Arts Degree is anticipated, a degree plan should be worked out during the

junior year. Electives should be chosen chiefly from the social sciences.

The Degree of Bachelor of Arts for Prelaw Students: The Bachelor of Arts Degree for prelaw students may be obtained in one of two ways:

- A. While in residence at Texas Technological College completing the degree requirements prescribed in this bulletin.
- B. By completing three years of work in the School of Arts and Sciences, totaling a minimum of 96 semester hours and graduation from a three-year standard law school, and subject to the following regulations:
 1. Of the three years of 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 in Texas Technological College with the exception of the major requirements.
 3. A minimum of 18 hours credit should be obtained in one social science and a minimum of 18 hours in one or more of the other social sciences.
 4. The applicant for a Bachelor of Arts Degree must present credentials showing graduation from an approved law school along 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 adviser for prelaw students. All prelaw students should consult him at each registration period.

THE DEGREE OF BACHELOR OF SCIENCE

For students primarily interested in the natural sciences and mathematics, the School of Arts and

Sciences provides curricula leading to the Degree of Bachelor of Science. The fundamentals of liberal education as well as the foundation courses necessary for advanced study in the fields of science and mathematics are emphasized in the requirements for this degree. The minimum requirements for this degree, in terms of semester hours, are as follows:

	Sem. Hrs.
1. English	12
2. Foreign language	12
3. Mathematics	6
4. American history	6
5. Government	6
6. Additional courses to make a minimum total of 124 semester hours, exclusive of required physical education, band, or air or military science.	
7. Physical education, band, or basic ROTC	4-6

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 bacteriology, botany, chemistry, geology, mathematics, physics, and zoology. The minimum requirements for the major and minor are 36 and 18 semester hours, respectively, including the required amount of advanced work.

Unless indicated to the contrary in a specific curriculum, courses are to be taken in at least three of the four fields of science: biology, chemistry, geology, and physics.

BACHELOR OF SCIENCE BACTERIOLOGY MAJOR

Freshman and Sophomore Years

First Semester	Credit
Biol. 133—Botany	3
Chem. 141—Gen. Chem.	4
Math. 133—Col. Alg.	3
Eng. 131—Col. Rhet.	3
Eng. 231—Mast. of Lit.	3
Foreign Language	6
Zool. 235—Anat. Phys. Hyg., or	
Zool. 231—Comp. Vert. Anat.	3
Chem. 231—Qual. Anal.	3
P.E., Band or Basic ROTC	2-3
Science Elective	3

18 SCHOOL OF ARTS AND SCIENCES

Second Semester	Credit
Biol. 134—Zoology	3
Chem. 142—Gen. Chem.	4
Math. 131—Trigonometry	3
Eng. 132—Col. Rhet.	3
Eng. 232—Mast. of Lit.	3
Foreign Language	6
Zool. 236—Anat. Phys. Hyg., or	
Zool. 232—Comp. Vert. Anat.	3
Chem. 232—Inorg. Chem.	3
P.E., Band or Basic ROTC	2-3
Science Elective	3

33-34

Junior and Senior Years

First Semester	Credit
Bact. 331—Prin. of Bact.	3
Bact. 432—Immunology, Serology	3
Bact. (junior or senior)	3
Bact. Biol. or Bot. (junior or senior)	3
Chemistry (junior or senior)	3-4
Science Electives	9
Hist. 3321—Her. of Amer.	3
Electives	2
Govt. 233—Amer. Govt., Org.	3
Biol. 411—Seminar	1

33-34

Second Semester	Credit
Bact. 332—Prin. of Bact.	3
Bact. 433—Phys. of Bact.	3
Bact. (junior or senior)	3
Bact. Biol. or Bot. (junior or senior)	3
Chemistry (junior or senior)	3-4
Science Electives	6
Hist. 3322—Her. of Amer.	3
Electives	6
Govt. 234—Amer. Govt., Func.	3

33-34

BACHELOR OF SCIENCE BOTANY MAJOR

Freshman and Sophomore Years

First Semester	Credit
Biol. 133—Botany	3
Chem., Geol., or Phys.	
(beginning course)	8
Math. 133—Col. Alg.	3
Eng. 131—Col. Rhet.	3
Eng. 231—Mast. of Lit.	3
Foreign Language	6
Bot. 231—Plant Groups	3
Zool. 231—Comp. Vert. Anat.	3
P.E., Band, or Basic ROTC	2-3

34-35

Second Semester	Credit
Biol. 134—Zoology	3
Chem., Geol., or Phys.	
(beginning course)	8
Math. 131—Trigonometry	3
Eng. 132—Col. Rhet.	3
Eng. 232—Mast. of Lit.	3
Foreign Language	6
Bot. 232—Taxonomy	3
Zool. 232—Comp. Vert. Anat.	3
P.E., Band, or Basic ROTC	2-3

34-35

Junior and Senior Years

First Semester	Credit
Bot. 331—Plant Physiol	3
Botany (junior or senior)	3
Bact., Biol., or Bot. (junior or senior)	6

Chem., Geol., or Phys. (begin course)	4
Approved science electives	9
Hist. 3321—Her. of Amer.	3
Govt. 233—Amer. Govt., Org.	3
Approved electives	2
Bot. 411—Seminar	1

34

Second Semester	Credit
Bot. 339—Plant Anat.	3
Botany (junior or senior)	3
Bact., Biol. or Bot. (junior or senior)	6
Chem., Geol., or Phys. (begin course)	4
Approved science electives	6
Hist. 3322—Her. of Amer.	3
Govt. 234—Amer. Govt., Func.	3
Approved electives	6

34

BACHELOR OF SCIENCE ZOOLOGY MAJOR

Freshman and Sophomore Years

First Semester	Credit
Biol. 134—Zoology	3
Chem., Geol., or Phys. (begin course)	8
Math. 133—Col. Alg.	3
Eng. 131—Col. Rhet.	3
Eng. 231—Mast. of Lit.	3
Foreign Language	6
Zool. 231—Comp. Vert. Anat.	3
Bot. 231—Plant Groups	3
P.E., Band, or Basic ROTC	2-3

34-35

Second Semester	Credit
Biol. 133—Botany	3
Chem., Geol., or Phys. (begin course)	8
Math. 131—Trigonometry	3
Eng. 132—Col. Rhet.	3
Eng. 232—Mast. of Lit.	3
Foreign Language	6
Zool. 232—Comp. Vert. Anat.	3
Bot. 232—Taxonomy	3
P.E., Band, or Basic ROTC	2-3

34-35

Junior and Senior Years

First Semester	Credit
Zool. 331—Anim. Histol., or	
Zool. 336—Comp. Invert. Zool.	3
Zoology (junior or senior)	3
Bact., Biol., or Zool. (junior or senior)	6
Chem., Geol., or Phys. (begin course)	4
Approved science electives	9
Hist. 3321—Her. of Amer.	3
Govt. 233—Amer. Govt., Org.	3
Approved electives	2
Zool. 411—Seminar	1

34

Second Semester	Credit
Zool. 332—Embryology, or	
Zool. 333—Parasitology	3
Zoology (junior or senior)	3
Bact., Biol., or Zool. (junior or senior)	6
Chem., Geol., or Phys. (begin course)	4
Approved science electives	6
Hist. 3322—Her. of Amer.	3
Govt. 234—Amer. Govt., Func.	3
Approved electives	6

34

BACHELOR OF SCIENCE CHEMISTRY MAJOR

Freshman Year

First Semester	Credit
Chem. 141—Gen. Chem.	4
Math. 133—Col. Alg.	3
Math. 131—Trigonometry	3
Eng. 131—Col. Rhet.	3
Phys. 141—General Phys., or Science elective	4-3
P.E., Band, or Basic ROTC	1-2
	17-19

Second Semester	Credit
Chem. 142—Gen. Chem.	4
Math. 231—Diff. and Integ. Calc.	3
Math. 132—Anal. Geom.	3
Eng. 132—Col. Rhet.	3
Phys. 142—General Phys., or Science elective	4-3
P.E., Band, or Basic ROTC	1-2
	17-19

Sophomore Year

First Semester	Credit
Chem. 231—Qual. Anal.	3
Chem. 345—Quan. Anal.	4
Math. 232—Diff. & Integ. Calc.	3
Ger. 131—Begin. German	3
Science elective, or Phys. 141—Gen. Phys.	3-4
P.E., Band, or Basic ROTC	1-2
	17-19

Second Semester	Credit
Chem. 232—Inorg. Chem.	3
Chem. 346—Quan. Anal.	4
Eng. 233—Tech. Writing	3
Ger. 132—Begin. German	3
Science elective or Phys. 142—Gen. Phys.	3-4
P.E., Band, or Basic ROTC	1-2
	17-19

Junior Year

First Semester	Credit
Chem. 353—Org. Chem.	5
Chem. 441—Phys. Chem. I	4
Ger. 233—Scien. German	3
Science elective	3
Hist. 3321—Her. of Amer.	3
	18

Second Semester	Credit
Chem. 354—Organ. Chem.	5
Chem. 442—Phys. Chem. II	4
Ger. 234—Scien. German	3
Free elective	3
Hist. 3322—Her. of Amer.	3
	18

Senior Year

First Semester	Credit
Chem. 411—Seminar	1
Govt. 233—Amer. Govt., Org.	3
Economics	3
Senior Chemistry	3
Eng. 231—Mast. of Lit.	3
Science or Math elective	3
	16

Second Semester	Credit
Chem. 412—Seminar	1
Govt. 234—Amer. Govt., Func.	3
Economics	3
Senior Chemistry	3
Eng. 232—Mast. of Lit.	3
Science or Math. elective	3
	16

BACHELOR OF SCIENCE GEOLOGY MAJOR

Freshman Year

First Semester	Credit
Geol. 141—Phys. Geol.	4
Chem. 141—Gen. Chem.	4
Math. 133—Col. Alg.	3
Eng. 131—Col. Rhet.	3
P.E., Band, or Basic ROTC	1-2
	15-16

Second Semester	Credit
Geol. 142—Hist. Geol.	4
Chem. 142—Gen. Chem.	4
Math. 131—Trigonometry	3
Eng. 132—Col. Rhet.	3
P.E., Band, or Basic ROTC	1-2
	15-16

Sophomore Year

First Semester	Credit
Geol. 241—Mineral. and Petr.	4
Phys. 141—Gen. Phys.	4
Math. 132—Anal. Geom.	3
Eng. 231—Mast. of Lit.	3
For. Lang. 131	3
P. E., Band, or Basic ROTC	1-2
	18-19

Second Semester	Credit
Geol. 242—Mineral. and Petr.	4
Phys. 142—Gen. Phys.	4
Math. 231—Diff. and Integ. Calc.	3
Eng. 232—Mast. of Lit.	3
For. Lang. 132	3
P. E., Band, or Basic ROTC	1-2
	18-19

Junior Year

First Semester	Credit
Geol. 331—Geomorphology or Geol. 332—Struct. Geol.	3
Geol. 335—Gen. Paleo.	3
Math. 232—Diff. and Integ. Calc.	3
For. Lang. 231	3
Govt. 233—Amer. Govt. or Hist. 3321—Her. of Amer.	3
Electives	3
	18

Second Semester	Credit
Geol. 332—Struct. Geol. or Geol. 331—Geomorphology	3
Geol. 336—Gen. Paleo.	3
For. Lang. 232	3
Govt. 234—Amer. Govt. or Hist. 3322—Her. of Amer.	3
Electives	6
	18

SUMMER SESSION

Geol. 363, Field Geology	6
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Senior Year

First Semester	Credit
Geol. 431—Optical Min. and Petrog.	3
Geol. 431A—Prin. of Stratig.	3
Geol. 433—Petr. Geol. or Geol. 4311—Eco. Geol. or Geol. 437—Sedimentation	3
Govt. 233—Amer. Govt. or Hist. 3321—Her. of Amer.	3
Electives	6
	18

Second Semester	Credit
Geol. 432—Optical Min. and Petrog.	3
Geol. 4315—Paleo., Meso., and Ceno. Stratig.	3
Geol. 434—Petr. Geol. or Geol. 4312—Eco. Geol. or Geol. 438—Sedimentation	3
Govt. 234—Amer. Govt. or Hist. 3322—Her. of Amer.	3
Electives	3
	15

BACHELOR OF SCIENCE
MATHEMATICS MAJOR

Freshman Year

First Semester	Credit
*Math 133—Algebra	3
Eng. 131—Col. Rhet.	3
Foreign Language	3
Science	7-8
P.E., Band, or Basic ROTC	1-2
	17-19

Second Semester	Credit
Math. 131—Trigonometry	3
Eng. 132—Col. Rhet.	3
Foreign Language	3
Science	7-8
P.E., Band, or Basic ROTC	1-2
	17-19

Sophomore Year

First Semester	Credit
Math. 132—Anal. Geom.	3
**Math. 231—Diff. and Integ. Calc.	3
Eng. 231—Mast. of Lit.	3
Foreign Language	3
Science elective	4
P.E., Band, or Basic ROTC	1-2
	17-18
Second Semester	Credit
Math. 232—Diff. and Integ. Calc.	3
Eng. 232—Mast. of Lit.	3
Foreign Language	3
Science	4
Approved elective	3
P.E., Band, or Basic ROTC	1-2
	17-18

Junior and Senior Years

First Semester	Credit
***Math (junior and senior)	12
Govt. 233—Amer. Govt., Org.	3
Science (for minor)	6
Hist. 3321—Her. of Amer.	3
Approved electives	6
	30

Second Semester	Credit
***Math (junior and senior)	9
Govt. 234—Amer. Govt., Func.	3
Science (for minor)	6
Hist. 3322—Her. of Amer.	3
Approved electives	9
	30

BACHELOR OF SCIENCE
PHYSICS MAJOR

Freshman Year

First Semester	Credit
Eng. 131—Col. Rhet.	3
Math. 133—Col. Alg.	3
Math. 131—Trigonometry	3
Phys. 141—Elem. Phys.	4
Chem. 141—Gen. Chem.	4
P.E., Band, or Basic ROTC	1-2
	18-19

Second Semester	Credit
Eng. 132—Col. Rhet.	3
Math. 231—Diff. and Integ. Calc.	3
Math. 132—Analytics	3
Phys. 142—Elem. Phys.	4
Chem. 142—Gen. Chem.	4
P.E., Band, or Basic ROTC	1-2
	18-19

Sophomore Year

First Semester	Credit
Eng. 231—Mast. of Lit.	3
Math. 232—Diff. and Integ. Calc.	3
Phys. 235—Engr. Phys.	3
Phys. 215—Phys. Meas.	1
Geol. 141—Gen. Geol.	4
P.E., Band, or Basic ROTC	1
Hist. 231—Hist. of U.S. to 1865	3
	18

Second Semester	Credit
Eng. 232—Mast. of Lit.	3
Math. 331—Applic. of Calc.	3
Phys. 236—Engr. Phys.	3
Phys. 216—Phys. Meas.	1
P.E., Band, or Basic ROTC	1
Geol. 142—Gen. Geol.	4
Hist. 232—Hist. of U.S. since 1865	3
	18

*If the student makes a sufficiently good grade in the placement test, Math 131 may be taken simultaneously with Math. 133.

**Math. 231 may be taken simultaneously with Math. 132 only if the student has made an average of C or better in Math. 133 and Math. 131.

***Astr. 231 may be counted in this group.

Junior Year

First Semester	Credit
Ger. 131—Begin. German, or	
French 131—Begin. French	3
Phys. 331—Light	3
Phys. 336—Elec. and Mag.	3
Phys. 337—Atomic Phys.	3
Math. 332—Diff. Equations	3
	<hr/> 15

Second Semester	Credit
Ger. 132—Begin. German, or	
French 132—Begin. French	3
Phys. 332—Heat and Thermo.	3
Phys. 341—Elect. Tubes and App.	4
Phys. 338—Nuclear Phys.	3
Elective	3
	<hr/> 16

Senior Year

First Semester	Credit
Govt. 233—Amer. Govt., Org.	3
Phys. 436—Indiv. Study	3
Eco. 231—Prin. of Eco.	3
Math. 434—Adv. Calc.	3
Phys. 423—Elec. Meas.	2
Ger. 233—Scien. German, or	
French 231—Grammar Readings	3
	<hr/> 17

Second Semester	Credit
Govt. 234—Amer. Govt., Func.	3
Eco. 232—Prin. of Eco.	3
Phys. 435—Mechanics	3
Math. 435—Adv. Calc.	3
Phys. 424—Elec. Meas.	2
Ger. 234—Scien. German, or	
French 232—Grammar Readings	3
	<hr/> 17

THE DEGREE OF BACHELOR OF ARTS FOR ENGINEERING STUDENTS

Students desiring a broader approach upon which to base their studies in engineering may receive the Degree of Bachelor of Arts by completing three years' work in a School of Arts and Sciences with a minimum of 100 semester hours' work, and by completion of the requirements for one of the various degrees of Bachelor of Science in Engineering at this College. The three years' work must satisfy all graduation requirements for the Degree of Bachelor of Arts at Texas Technological College with the exception of the major requirements. Students may transfer from other colleges to the School of Arts and Sciences and complete their requirements provided that at least the equivalent of the junior year is taken in this School, but students who have completed

more than one year in engineering at this College or elsewhere are not eligible to participate in this program.

TEACHER EDUCATION

The preparation and in-service improvement of teachers is an important function at Texas Technological College, both at the graduate and undergraduate level. With the critical shortage of qualified teachers, and the rapidly increasing birth rate, the problem of providing qualified teachers for the classrooms of Texas communities becomes of critical importance to all institutions with programs in teacher education. At Texas Technological College, teacher education is an all-college responsibility in which many departments and offices cooperate. The responsibility for advisement leading to degrees in the various schools resides in the offices of the respective deans. The advisement and guidance in the Professional Education Curriculum leading to certification to teach is the responsibility of the Department of Education. The advisement in various teaching majors and minors is the responsibility of the appropriate subject matter departments. The resulting program is both varied and integrated and draws its strength from the total resources of the College.

Undergraduate and graduate teacher education programs are offered in the Schools of Agriculture, Arts and Sciences, Business Administration, Home Economics, and the Graduate School.

TEACHING CERTIFICATES

General Information

Under the 1955 teacher certification laws of Texas there are two general types of teaching certificates: the permanent provisional and the permanent professional. The permanent provisional certificate is based on a bachelor's degree and certain prescribed work constituting a state-approved certification program. The

professional certificate is based on a provisional certificate, three years' teaching experience, and a minimum of 30 semester hours of graduate college work beyond the bachelor's degree. In many instances, but not in all, this graduate course work can coincide with master's degree requirements.

Please note that under the new laws teaching certificates are issued only to persons holding a bachelor's degree. Emergency teaching permits can be obtained for non-degree persons, but such permits are obtained only through the superintendent of the local school system which employs the non-degree person. These permits are valid for the remainder of the scholastic year in which they are issued and only in the school system through which the application for the permit was made.

The Texas Education Agency, the administrative agency for teacher certification in Texas, no longer analyzes the college transcripts of individual students for specific courses as a basis for issuing teaching certificates. Certificates are now issued by the Agency only upon receiving from the certifying agent of a particular college (1) verification that the student has completed a program approved for that college; and (2) recommendation from the college that the applicant possesses personal attributes indicative of a successful teacher.

Requirements for Admission to Student Teaching. Beginning with fall semester of 1959-60, each person expecting to receive a teaching certificate in any subject must meet the following admission standards to student teaching:

1. The student must have completed approximately 90 hours of college work, including the requisite courses in professional education and a majority of the work required in the teaching major and in the minor.
2. All students except those in Agricultural Education and Home Economics Education must file an application with the Depart-

ment of Education to enroll in student teaching at the time of registration for the first semester of the junior year. This is done in order to permit proper planning and placement of students in their teaching field.

3. The student must pass the same health examination as that required for teachers in the school system in which student teaching is done. The examination center will be specified at the filing of the application to student teaching.
4. The student must present evidence of freedom from extreme handicaps that would be detrimental to classroom teaching.
5. The student must have a 1.00 average on all college work and a 1.25 average in professional education and in the major and in the minor. For the purpose of computing the 1.25 grade point average in the teaching major and minor in the case of the prospective elementary teacher, the courses classified with the Texas Education Agency as **elementary content** will be regarded as the teaching major and minor.
6. The student must demonstrate a proficiency in the use of the English language as measured by appropriate standardized tests.

In meeting the standards described above, all transfer students will be considered as special cases by the Committee on Student Teaching.

Requirements for Obtaining a Teaching Certificate. A student obtaining a teaching certificate through Texas Technological College must meet the following grade point requirements:

1. A 1.00 overall average on all college work.
2. A 1.25 average in professional education and in the teaching major and in the teaching minor. (In the case of the applicant for the elementary teaching certificate the courses designated as

elementary content will be regarded as the teaching major and minor for computational purposes.)

Provisional Certificates

Texas Technological College has approved provisional certificate programs at both the elementary and the secondary school levels. In certain highly specialized fields, Texas Tech has approved programs which will qualify the individual for teaching his special subject at both the elementary and the secondary school levels. This special subject teaching certificate carries what is known as an all-level endorsement. The specific areas and teaching fields in which Texas Tech has approved provisional certificate programs are as follows:

1. **Elementary education.** The specific courses required in the approved program for elementary teachers will be found in the Department of Education section of this bulletin.
2. **Secondary education.** There are two general types of subject teaching fields within the secondary program. One requires both first and second teaching fields in subjects taught in the secondary school.

Content areas in which Texas Tech has approved first teaching fields are:

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

Content areas in which Texas Tech has approved second teaching fields are:

Biology	History
Chemistry	Health
Economics	Education
English	Journalism
French	Latin
German	Mathematics
Government	Music — Vocal

Music — Instrumental	Physics
Physical Education	Spanish
	Speech

If the student is following the above certification plan, he must consult the heads of the departments in which he plans to do his first and second teaching fields about the specific courses to be taken in these two fields. The Department of Education must be consulted about the specific courses in professional education which are required.

The second type of teaching field under the secondary program is the broad field (composite) type. This type involves a minimum of 36 hours of course work in a broad field such as social science or business education, but in most instances 42 or more hours will be required. For certification purposes such broad field programs do not require a second teaching field; for degree purposes, however, minors may be required.

Tech has approved provisional certificate programs in the following broad fields:

Agricultural Education	Art
Business Education	Music
Home Economics Education	Science
	Social Science

If the student plans to teach in one of the first three broad fields named above, he should consult the department in which he plans to do his teaching field for the details of his entire program. If the student plans to teach in one of the four latter broad fields, he must consult the department within that broad field in which he plans to do the major portion of his work. That department will advise the student concerning all the specific courses he needs in the broad teaching field. The Department of Education must

be consulted in regard to the specific courses required in professional education.

3. **All level certificates.** In certain specialized fields it is possible to obtain an all-level certificate which will entitle the holder to teach his special subject only, in both the elementary and the secondary schools. It should be noted, however, that in the event the holder of the all-level certificate wishes to qualify to teach anything other than his special subject in either the secondary or the elementary school, he must do additional college work both in the content fields to be taught and in professional education.

Approved programs leading to provisional all-level certification are available in the following fields:

Art Education
Health and Physical Education
Music Education
Speech Correction

If the student is working toward all-level certification endorsement in either health and physical education or in music education, he should consult the head of that department for the details of the entire program. A person working toward all-level certification endorsement in speech correction must confer with the Department of Speech for the details of his course work in that area and with the Department of Education for his required professional education courses. All-level certification in art is a joint program involving work in the Department of Allied Arts and in the Department of Applied Arts. The student working toward this special teaching field must consult either of these departments for the required work in art and must consult the Department of Education for the required work in professional education.

Certification Plans

At Texas Technological College, teaching certificates are obtained through the Director of Teacher Certification, who must verify to the Texas Education Agency, along with other required information, that the applicant for a certificate has completed the program approved for that particular certificate. Since certification programs and degree programs do not necessarily coincide, and since in some endorsement areas there is multiple school and department involvement, it is necessary that a certification plan be filed in the office of the Director of Teacher Certification. This plan is distinct from the degree plan which is filed in the office of the student's academic dean. This certification plan, if followed, is a safeguard to the student that he will not be deficient in some particular requirement at the time he applies for his teaching certificate. All students, with the exception of those in agricultural education, business education, and home economics education, should obtain the proper certification plan forms from the Director of Teacher Certification and have these forms filled out by the proper college officials. This action should be taken as soon as the student has decided to work toward a teaching certificate. Students in home economics education, business education, and agricultural education should consult their respective department heads as to the proper time to file their certification plans with the Director of Certification.

Professional Certificates

Prerequisites to all professional certificates are: (1) a bachelor's degree, (2) a Texas provisional certificate, and (3) three years' successful public school teaching experience. For several of these professional certificates there are special prerequisites such as the type of endorsement appearing on the prerequisite provisional certificate and the school level or field in which the three years' teaching experience was obtained.

Each program leading to professional certification is designed as a whole to prepare the applicant for the specific professional position for which he is qualifying. Each approved professional certification program contains a minimum of 30 semester hours of graduate work; some require more. Each is a definite, planned program, not merely a collection of courses.

Texas Technological College has approved professional certification programs in the following areas of specialization for the classroom teacher:

Art
Elementary
Health and
Physical Education
High School
Music
Speech - Drama
Vocational
Agriculture
Vocational
Homemaking

In addition to the above, Texas Technological College has approved professional certificate programs for the following specialized positions:

School Counselor	Supervisor
Principal	Elementary
Elementary	Secondary
Secondary	General
Superintendent	

Although all of the above professional certificate programs have inter-departmental involvement in varying degrees, the program leading to certification in counseling in the public schools is offered jointly by the Department of Education and the Department of Psychology. This program can be integrated with the Master of Education Degree or the Master of Arts Degree if carefully planned. Under the inter-departmental arrangement, the student desiring to be certified in counseling in the public schools will major in education and minor in psychology. The student who desires to be certified for the purpose of counseling in both schools and/or in rehabilitation and industry will major in psychology and minor in education. Students in-

terested in the public school counselor's certification program should confer with the head of either of the above departments for details and program planning after contacting the Office of Teacher Certification to determine whether he meets the state requirements to work toward this particular certificate.

Professional Certification Plans. A student wishing to work toward a professional certificate in an area should first contact the office of the Director of Teacher Certification in order to:

1. Establish whether he meets the state requirements for working toward a professional certificate in that area.
2. Obtain the certification plan forms for the particular program in which he will be working.
3. Secure advice as to which departments he will need to contact in order to execute the certification plan forms.

Graduate Degrees and Professional Certificates. Persons who want to work toward a graduate degree as well as toward a professional certificate should contact the Dean of the Graduate School for information regarding degree requirements.

Bilingual Secretarial (French, German, Spanish) Program

This course of study is offered jointly by the Department of Foreign Languages and the Department of Business Education and Secretarial Administration (of the School of Business Administration). It 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.

Students following this course of study receive the Bachelor of Arts Degree by fulfilling the basic requirements in that degree. They major in French, German, or Spanish, and complete a minor in an academic subject.

In addition they take up to 25

hours in the Department of Secretarial Administration from the following courses: 121-122, 131-132, 235, 321, 331, 333, 328, 421. Credit is allowed in typing and shorthand only for those completing the course of study and upon demonstration of competence in both fields.

Students interested in this program should consult the Head of the Department of Foreign Languages for information concerning it and future employment opportunities.

Latin American Area Studies

This course of study is planned to give students a well-rounded liberal education in several interrelated fields and also basic training for various occupational opportunities in export-import houses, manufacturing concerns, shipping companies, airway systems, banking institutions, government offices; or for journalism, translating, or interpreting. The program also offers students excellent preparation for graduate work in area studies.

Students following this program will take an inter-departmental major in Latin American Area Studies. The basic preparation for the major is fulfillment of the minimum requirements for the Bachelor of Arts degree totaling 42 to 68 semester hours, depending on high school preparation. The foreign language requirement should be fulfilled by completion of Spanish 333-334. Economics 231-232 should be included as a prerequisite for economics courses in the Latin American area.

Required for the major: 30 semester hours from the Latin American content courses listed below:

Government: 3 to 6 hours in 3317, 3318

Economics: 3 to 6 hours in 339, 3315

History and Sociology: 9 to 15 hours in History 3331, 3332, 4323, 4324, Sociology 336.

Spanish: 6 to 12 hours in 4324, 4325, 4326, 4327, 4328-4329; or 12 hours of Portuguese or French. (If

Portuguese or French is chosen, 36 hours are required in the major).

Minor: The minor of 18 semester hours may be chosen from any of the fields listed under the major, in which case the same course may not be counted for both the major and the minor, or from any field in the College in which a minor is customarily taken. Suggested fields involving cultural objectives or professional studies with a view to future job placement are: accounting, applied arts, bacteriology, botany, chemistry, clothing and textiles, economics, English, finance, food and nutrition, French, German, government, history, journalism, Latin, sociology, Spanish, speech, zoology.

Students wishing to major in Latin American Area Studies should consult the major adviser, Mr. Raymond D. Mack, Department of Government.

Organization of the School of Arts and Sciences

The School of Arts and Sciences is but one of five undergraduate schools of the College. This School is composed of the following departments:

- Biology
- Chemistry
- Education and Philosophy
- English
- Foreign Languages
- Geology
- Government
- Health and Physical Education for Men
- Health and Physical Education for Women
- History, Anthropology, and Sociology
- Journalism
- Mathematics
- Music
- Physics
- Psychology
- Speech
- Biblical Literature

In the following pages the programs offered by these departments with their various majors and ob-

jectives are outlined. The student should note carefully any particular requirements indicated by the departments concerned.

Course descriptions are also included as given by the departments. The numbers given in parentheses following the name of the course such as (3:2:3) indicate, in sequence, the semester-hour value of the course, the number of hours per week in class or recitation, and the number of hours per week in laboratory. The first digit of the course number indicates whether the course is designed primarily for freshmen, sophomores, juniors, seniors, or graduates depending upon whether that first digit is 1, 2, 3, 4, or 5.

An examination of these course descriptions will reveal that many areas are covered and with different interests and purposes. Some are for the specialist in that area while others are open to all students. Hence the student has the opportunity of

selecting courses which appeal to him for broadening his educational experience or for concentration in a particular subject. The wise student will include courses of both kinds.

Special Course Charges

Expenses incurred by students during registration are listed in the General Information Bulletin. In certain of the following course descriptions, some specific fees are shown. Otherwise, for all laboratory courses in which the combined credit of lecture and laboratory is from 1 to 3 semester hours, a **laboratory fee** of \$2 is charged for each semester. For courses in which the semester credit is 4 semester hours or more, the laboratory fee is \$4 per semester. A laboratory fee of \$2 is charged for each freshman student participating in the early registration counseling and testing program to cover laboratory materials and supplies.

Department of Biology

Professors:

Mr. Cross, Head
Mr. Sealey

Mr. Landwer
Mr. Strandtmann

Associate Professors:

Miss Bodemann

Mr. Camp

Assistant Professors:

Mr. Prior
Mr. Rowell

Mr. Proctor
Mr. Tinkle

Instructors:

Mr. Brooks
Mrs. Duran
Mr. Longpre*
Mrs. Tilton*

Mr. Cumbie
Mrs. Henderson
Mrs. Riggs

Teaching Fellows:

Mr. George
Mr. Kalana

Miss Hillman
Mrs. Pruitt

Since the beginning of the twentieth century, increasing interest in biology has developed in Texas. This interest affected Texas Technological College during the early years of the institution, and has continued to grow as the institution has grown. At present the Department of Biology offers courses leading to a bachelor's degree with a major in bacteriology, botany, entomology, or zoology. Courses leading to a master's degree are offered in botany and zoology.

From the standpoint of research, Texas Technological College is located in an area that has not been as intensely studied in field work as is the case with older colleges and universities. Much work needs to be done in the taxonomy of both plants and animals of the High Plains and adjacent areas; and with the highly developed farming and ranching that surrounds the college, both bacteriology and entomology offer much to students whose interests are in sanitation, medical technology, and agriculture.

Students majoring in bacteriology, 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 the following courses in the

Department of Biology as a minimum: Biology 133-134, 411; Botany 231, 232, 331, 339; Zoology 231-232; and 12 additional hours in courses of junior and senior rank in bacteriology, biology, or botany. Students majoring in zoology for the bachelor's degree are expected to complete the following courses in the Department of Biology as a minimum: Biology 133-134, Biology 411; Zoology 231-232; and two of the following four—Zoology 331, 332, 333, 336; Botany 231, 232; and 12 additional hours in courses of junior and senior rank in bacteriology, biology, entomology, or zoology.

Students majoring in bacteriology will be expected to complete the following courses; Biology 133-134, 411; Zoology 235-236, or 231-232; Bacteriology 331-332, 432, 433, plus 6 semester hours of bacteriology of junior and senior rank, or 3 semester hours of junior or senior rank and Zoology 333. Dairy Industry 335 may be counted as a course in bacteriology of junior rank.

The program in entomology has course listings in both this department and the Department of Horticulture and Park Management. Courses in the Biology Department stress the zoological phases of entomology and courses in horticulture

*On Leave 1958-59

and park management stress the applied phases. Students desiring a broad entomology background should take courses in both departments.

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 in their major and minor fields in the public schools of Texas.

Those students using biology as a teaching major for the Degree of Bachelor of Science in Education should take the following courses: Biology 133-134, 332; Botany 231, 232; Bacteriology 331-332; Zoology 235-236, 437. Those using biology for a minor for the Bachelor of Science in Education should take Biology 133-134; Zoology 235-236; Botany 232, and one of the following courses: Biology 331, 332, 333; Bacteriology 333; Entomology 334; Zoology 332, 336.

Students may elect a science teaching option. With the proper selection of courses this plan can qualify a person for teaching in as many as four fields of science as taught in Texas public schools. Under this plan a student must complete a minimum of 42 hours of science distributed in at least three fields. He must have a minimum of 18 hours in one of the science departments and at least 8 semester hours in each science field included in his program. Of the 42 hours, not more than 24 will be accepted in any single department for certification purposes, although the student may elect to do as much work as he desires in any department in excess of the certification requirements.

In addition to completing the above pattern of courses, candidates for degrees other than the Bachelor of Science in Education must meet the usual requirements for those degrees. The science departments involved in this science program are biology, chemistry, geology and physics. For certification purposes, work in the Department of Geology may not exceed 8 semester hours. The groupings of courses a-

vailable in the Biology Department for the student selecting this option are given below. In the departmental sections of Chemistry and Physics the possible groupings within those departments are given.

1. 9 semester hours:
Biology 133-134, Biology 332.
2. 12 semester hours:
Biology 133-134; Zoology 235-236.
3. 18 semester hours:
Biology 133-134, 332; Botany 232; Zoology 235-236.
4. 24 semester hours:
Biology 133-134, 332; Botany 232; Zoology 235-236; Bacteriology 331-332.

No grade below C will be accepted on the major for the bachelor's degree in the Department of Biology. No grade below C will be accepted on the minor for the bachelor's degree, if the major and minor are both in the Department of Biology. No grade below B will be accepted for any graduate course, major or minor, if the student's major is in the Department of Biology.

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 course in the field 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 bacteriology or biology may be counted as courses of the same level either in botany or zoology.

For detailed information for requirements for the B.S. Degree see Page 17.

BACTERIOLOGY

For Undergraduates

231 BACTERIOLOGY. (3:2:3)

Open only to students of the Schools of Agriculture and Home Economics during their sophomore or junior year. Prerequisite: 3 semester hours in the Biology Department. The morphology, physiology and activities of bacteria and molds, with emphasis on those of soils and of food and dairy products.

For Undergraduates and Graduates**331-332. PRINCIPLES OF BACTERIOLOGY. (3:2:3)**

Prerequisite: 12 semester hours in the Departments of Biology, Chemistry, Geology, or Physics; prerequisite or parallel: 6 semester hours in chemistry. The morphology, physiology, and classification of bacteria and molds. Bacteria in relation to soils, food and water sanitation, disease, and the problems of immunity.

333. COMMUNICABLE DISEASES. (3:3:0)

Prerequisite: 3 semester hours in bacteriology; 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 bacteriology; junior standing. Bacteria and molds in their relations to food spoilage and food sanitation. Offered at intervals.

431. PROBLEMS IN BACTERIOLOGY. (3:0:9)

Prerequisite: 6 semester hours of bacteriology. Selected problems in the various fields of bacteriology, 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 bacteriology; 10 semester hours of chemistry. The 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 bacteriology; 12 semester hours of chemistry. Chemistry and physiology of bacteria and related microorganisms; the influence of environment on bacterial metabolism, growth and reproduction.

BIOLOGY**For Undergraduates****133-134. BOTANY AND ZOOLOGY. (3:2:3)**

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. Biology 133, botany, emphasizes the important groups of plants. In Biology 134 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.

For Undergraduates and Graduates**331. HEREDITY. (3:3:0)**

Prerequisite: 12 semester hours in the Biology Department. Principles of heredity with special reference to practical application in human affairs, heredity mechanisms, and problems.

332. TEACHING OF BIOLOGY. (3:3:0)

Prerequisite: 12 semester hours in the Biology Department; or 6 semester hours in the Biology Department and 6 semester hours in chemistry, geology, geography, or physics; and 6 semester hours in education. Lectures, assigned readings, reports, and laboratory and field problems. May be counted as biology or education. Offered at intervals. For graduates if the degree is Master of Arts in Teaching.

333. BIO-ECOLOGY. (3:3:0)

Prerequisite: 12 semester hours in the Biology Department, or junior standing in the School of Agriculture, or Biol. 133, 134, and junior standing in the Department of Geology.

Introduction to the relationship of organisms to their environment. Field trips to nearby points are included at a minimum cost to the student.

411. BIOLOGY SEMINAR. (1:1:0)

Prerequisite: Senior or graduate standing in bacteriology, botany or zoology. Critical reviews of classical and recent literature and reports of original investigations. May be repeated for credit.

BOTANY**For Undergraduates****231. MORPHOLOGY OF THE PLANT GROUPS. (3:2:3)**

Prerequisite: Biol. 133-134. The morphology of those plant groups not emphasized in Biol. 133.

232. TAXONOMY. (3:2:3)

Prerequisite: Biol. 133-134. Principles and practice in the classification of the flowering plants.

For Undergraduates and Graduates**331. PLANT PHYSIOLOGY. (3:2:3)**

Prerequisite: Bot. 231-232; or Biol. 133-134 and 6 semester hours in horticulture or agronomy; prerequisite or parallel, Chem. 141. The physiological processes as applied to the seed plants.

332. PLANT PATHOLOGY. (3:2:3)

Prerequisite: Biol. 133-134 and 6 additional hours in agronomy, botany, or horticulture; prerequisite or parallel, Bact. 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. 133-134 and 6 semester hours in horticulture or agronomy. Studies of anatomy of the vascular plants.

431. BOTANICAL MICROTECHNIQUE. (3:2:3)

Prerequisite: Bot. 339; or 3 semester hours of botany of sophomore rank and 9 semester hours in horticulture or agronomy. Freehand and microtome sections, staining, and the preparation of permanent slides.

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. 133-134 and 12 semester hours in 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.

437. PROBLEMS IN PLANT GEOGRAPHY. (3:3:0)

Prerequisite: 6 semester hours in botany of junior rank; or Biol. 133-134 and 12 semester hours in zoology, geology, geography, horticulture, or agronomy. Geographic distribution of plants and its underlying principles: origin and composition of floras, 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: Bot. 331, 339; or Bot. 232 and 9 semester hours in horticulture or agronomy. Morphology and taxonomy of the fungi as a basis for plant pathology. Offered at intervals.

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. The cost of field trips is held to a minimum. May be repeated for credit with new materials. Offered at intervals.

631-632. MASTER'S THESIS. (6)

ENTOMOLOGY

For Undergraduates and Graduates

334. INSECT MORPHOLOGY. (3:2:3)

Prerequisite: Zoology 231-232 or Zoology 336 or 5 semester hours of entomology in the School of Agriculture. A critical study of the classification of insects. The student will be expected to have his own study collection.

335. INSECT TAXONOMY. (3:2:3)

Prerequisite: Entomology 334 or Zoology 336 or 5 semester hours of entomology in the School of Agriculture. A critical study of the classification of insects. The student will be expected to have his own study collection.

431. MEDICAL ENTOMOLOGY. (3:2:3)

Prerequisites: Senior standing in zoology, or Ento. 231 and senior standing in agriculture. A study of insects and other arthropods directly affecting man.

432. ACAROLOGY. (3:2:3)

Prerequisites: Senior standing in zoology or in one of the following three fields of agriculture: agronomy, horticulture, animal husbandry. The systematics, life histories, and control of mites affecting man, animals, and plants. Assigned problems and readings.

ZOOLOGY

For Undergraduates

135-136. HUMAN ANATOMY AND PHYSIOLOGY. (3:2:3)

The elements and fundamental principles of human anatomy and physiology. For nurses only. May not be used as part of the requirements for a major in zoology.

137. ANATOMY AND PHYSIOLOGY. (3:2:3)

Prerequisite: Chem. 133-134 or 141-142. The gross anatomy and physiology of the human body. The digestive and reproduction systems are emphasized. Open only to students of home economics and not applicable to degrees in other schools.

231-232. COMPARATIVE VERTEBRATE ANATOMY. (3:2:3)

Prerequisite: Biol. 133-134. Structure, function and history of the vertebrates with emphasis on the dogfish shark and the cat.

235-236. ANATOMY, PHYSIOLOGY, AND HYGIENE. (3:2:3)

Prerequisite: Chem. 133-134 or 141-142 and sophomore standing. Gross anatomy of the mammalian body; the various physiological processes; the fundamental principles of hygiene and sanitation; the fundamentals of heredity. May not be used as a part of the requirements for a major in zoology, but may be used as part of a major in bacteriology.

For Undergraduates and Graduates

331. ANIMAL HISTOLOGY. (3:2:4)

Prerequisite: Zool. 231-232. The study of normal animal tissues. Laboratory assignments are to be completed in the laboratory.

332. COMPARATIVE VERTEBRATE EMBRYOLOGY. (3:2:4)

Prerequisite: Zool. 231-232. 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. 231-232 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. A study of the cell in evolution and heredity.

436. ZOOLOGICAL TECHNIQUE. (3:0:9)

Prerequisite: 12 semester hours of zoology above the freshman year. Preparation and interpretation of permanent microscope slides.

437. NATURAL HISTORY OF THE VERTEBRATES. (3:2:3)

Prerequisite: Biol. 133-134; junior standing or above. This course is intended to acquaint the student with the fish, amphibians, reptiles, birds, and mammals with emphasis upon their habits, life history, and ecology. Emphasis will be placed upon the local fauna with which the student will be expected to become familiar. Local and overnight field trips.

432. ADVANCED PARASITOLOGY. (3:2:3)

Prerequisite: Zool. 333 and Zool. 436. Biology, taxonomy, and evolution of parasites, with emphasis on the arthropods.

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 must be presented before credit will be allowed.

532. PRINCIPLES AND METHODS OF SYSTEMATIC ZOOLOGY. (3:2:3)

Prerequisite: Graduate standing and consent of instructor. The study of 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.

535. FIELD ZOOLOGY. (3:0:9)

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 must be presented before credit will be allowed.

631-632. MASTER'S THESIS. (6)

BOTANY

(See Biology)

Department of Chemistry and Chemical Engineering*

Professors:

Mr. Dennis, Head

Associate Professors:

Mr. Estok

Assistant Professors:

Mr. Adamcik

Mr. McPherson

Mr. Shine

Part-time Instructor:

Mr. Wilson

Teaching Fellows:

Miss Ballard

Mr. Brasch

Mr. Neal

Mr. Sewell

Mr. Stewart

Mr. Goodwin

Mr. Slagle

Mr. Lee

Mr. Wendlandt

Miss Stuart

Mr. Hendry

Mr. Rekers

Mr. Southall

Mr. Bear

Mr. Kieffer

Mr. Nesbitt

Mr. Snell

Mr. Wheeler

CHEMICAL ENGINEERING

Professors:

Mr. Bradford

Associate Professor:

Mr. Renard

Teaching Fellows:

Mr. Duenkel

Mr. Hannah

Mr. Oberg

Assistant Professor:

Mr. Groves

Mr. Gunn

Mr. Lewis

The Department of Chemistry and Chemical Engineering offers curricula leading to three bachelor's degrees. For those who desire a maximum of flexibility in their choice of courses, the Bachelor of Arts Degree is recommended. Those who are preparing for professional work in medicine or in the teaching of science may find this curriculum preferable. The curriculum leading to 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 curriculum may be preferred by those who wish to enter industry as chemists. The curriculum for the Degree of Bachelor of Science in Chemical Engineering is described in the bulletin for the School of Engineering.

All three curricula are designed to fit the student for graduate work as well as the professional pursuits mentioned above.

It is highly desirable that the student's accomplishment be of the best quality. Grades of D will not be accepted in more than 20 per cent of the hours counted in a major in this department. Not more than one D will be accepted in any course.

All chemistry majors are required to take Chemistry 411-412 and to complete a minimum of 6 additional hours in senior chemistry. Chemistry 441-442 is required of all majors except pre-medical students who choose a "chemistry option." It is strongly recommended for these students.

The Department offers the Degrees of Master of Science in Chemical Engineering, Master of Science in Chemistry, and Doctor of Philosophy in Chemistry. The requirements for these degrees are outlined in the Graduate Bulletin.

For those planning to teach chemistry and other sciences, the following plans are offered: (see also Page 21).

*Effective Sept. 1, 1959, Chemical Engineering becomes a separate department in the School of Engineering.

Plan I. B.S. in Education with Chemistry Teaching Option**(1) Chemistry courses**

	Sem.	Hours
(a) General chemistry—Chem. 141-142...	8	
(b) Qualitative analysis—Chem. 231....	3	
(c) Inorganic chemistry—Chem. 232....	3	
(d) Quantitative analysis—Chem. 345-346	8	
(e) Organic chemistry—Chem. 353-354....	10	
Total chemistry		32

(2) Recommended Minor—physics, biology, or mathematics**Plan II. B.A. in Chemistry****(1) Chemistry courses**

	Sem.	Hours
(a) Chemistry listed under Plan I	32	
(b) Physical Chemistry—Chem. 441-442..	8	
(c) Seminar—Chem. 411-412.....	2	
Total chemistry		42

(2) Minor Courses

Minor may be in any field desired. This plan requires mathematics through calculus and Physics 141-142 as prerequisite for Chemistry 441-442.

(3) If desired, this plan may be adapted to a B.S. in Education, Chemistry Teaching Option. It is permitted, in such case, to omit Chemistry 411-412.**Plan III. Science Teaching Option**

Students may elect a science teaching option. With the proper selection of courses, this plan can qualify a person for teaching in as many as four fields of science as taught in Texas public schools. Under this plan a student must complete a minimum of 42 hours, distributed in at least three fields of science. He must have a minimum of 18 hours in one of the departments and at least 8 semester hours in each science field included in his program. Of the 42 hours, not more than 24 will be accepted in any single department for the certification requirements. In addition to completing the above pattern of courses, candidates for degrees other than the Bachelor of Science in Education must meet the usual requirements for those degrees. The science departments involved in this science program are biology, chemistry, geology, and physics. For certifica-

tion purposes, work in the Department of Geology may not exceed 8 semester hours. The groupings of courses available in the Chemistry Department for the student selecting this option are given below. In the departmental sections of Biology and Physics, the possible groupings within those departments are given.

	Sem.	Hours
1. Chemistry 141-142	8	
2. Chemistry 141-142, 341	12	
3. Chemistry 141, 142, 231, 341, 345	19	
4. (a) Chemistry 141-142, 231, 341, 345-346 or (b) Chemistry 141-142, 231, 345, 353-354	25-26	

CHEMISTRY**For Undergraduates****133-134. ELEMENTARY CHEMISTRY.**

(3:2:3)

Some of the principles and applications of inorganic, organic, and biochemistry. Only for nursing students, women physical education majors, and some home economics students. This course does not serve as prerequisite for any other course in chemistry. Applicable only to degrees with above majors.

141-142. GENERAL CHEMISTRY. (4:3:3)

Prerequisite for all other courses in chemistry except 133-134. A general course in chemistry for all students of the College except those mentioned under 133-134.

231. QUALITATIVE ANALYSIS (3:2:3)

Prerequisite: Chem. 141-142 (142 may be parallel). The qualitative separation and the detection of common cations and anions with a thorough consideration of underlying principles.

232. INORGANIC CHEMISTRY. (3:3:0)

Prerequisite: Chem. 231. A more extended consideration of those principles of chemistry which normally are not covered sufficiently in a first course.

235. HYDROCARBON CHEMISTRY. (3:3:0)

Prerequisite: Chem. 141-142. A service course for petroleum engineers. The study of the chemistry of hydrocarbons with particular reference to petroleum, natural gas, and synthetic fuels.

238. ANALYTICAL CHEMISTRY. (3:1:6)

Prerequisite: Chem. 141-142. A service course for petroleum engineering students. Principles of gravimetric and volumetric quantitative analysis.

330. THE TEACHING OF HIGH SCHOOL CHEMISTRY. (3:3:0)

Prerequisite: 12 hours of chemistry, or consent of instructor. Offered only in summer sessions.

341. INTRODUCTORY ORGANIC CHEMISTRY. (4:3:3)

Prerequisite: Chem. 141-142. A study of the compounds of carbon. Primarily for students in agriculture and home economics. Not open to majors in chemistry for credit.

342. PHYSIOLOGICAL CHEMISTRY. (4:3:3)

Prerequisite: Chem. 341 or equivalent. An elementary course in physiological chemistry.

345. QUANTITATIVE ANALYSIS I. (4:2:6)

Prerequisite: Chem. 141-142. Prerequisite or parallel. Chem. 231. The basic methods of gravimetric and volumetric analysis. Development of laboratory technique. May be taken by majors in other departments without all the usual prerequisites. This re-

quires the written permission of the instructor.

346. QUANTITATIVE ANALYSIS II (4:2:6)

Prerequisite: Chem. 345. Prerequisite or parallel: Chem. 232. The development of selected methods of analysis and their applications to the analysis of complex substances. Beginning instrumental techniques.

353-354. ORGANIC CHEMISTRY. (5:3:6 each)

Prerequisite: Junior standing in chemistry. A thorough foundation course in organic chemistry for chemical engineering majors, chemistry majors, premedical and other students. Prerequisite for all higher numbered courses in organic chemistry. Divided into sections according to student interest.

For Undergraduates and Graduates

411-412. CHEMICAL LITERATURE AND SEMINAR (1:1:0 each)

Prerequisite: Senior standing in chemistry. First semester primarily devoted to training in methods of using chemical literature and chemical libraries. Second semester primarily devoted to study of and reports upon specific topics. Required of all majors.

431. QUALITATIVE ORGANIC ANALYSIS. (3:1:6)

Prerequisite: Senior standing in chemistry. The identification of unknowns and the separation and identification of the components of mixtures of organic substances.

433. INORGANIC PREPARATIONS. (3:0:9)

Prerequisite: Senior standing in chemistry. Preparation and purification of inorganic compounds, with emphasis on principles and techniques.

434. ORGANIC PREPARATIONS. (3:0:9)

Prerequisite: Senior standing in chemistry. The synthesis of organic compounds with special attention to techniques and yields.

436. BIOLOGICAL CHEMISTRY I. (3:2:3)

Prerequisite: Senior standing in chemistry. The chemistry of carbohydrates, proteins, lipids, enzymes and other constituents of living systems.

437. BIOLOGICAL CHEMISTRY II (3:2:3)

Prerequisite: Senior standing in chemistry. A study of biochemical processes and their regulation.

438. PHYSICAL CHEMISTRY III. (3:2:3)

Prerequisite: Chem. 441-442. Theoretical treatment of thermodynamics, kinetic theory of gases, quantum mechanics, and reaction kinetics.

439. QUANTITATIVE ANALYSIS III. (3:2:6)

Prerequisite: Chem. 345, 346. A study of the more advanced methods of analytical chemistry and the applications of the important instruments used in industry and research.

441-442. PHYSICAL CHEMISTRY I-II. (4:3:3 each)

Prerequisite: Chem. 345-346, 5-6 semester hours in calculus, 6 semester hours in physics. Prerequisites or parallel: Chem. 353-354. The modern theories of chemistry and the methods of physicochemical measurements.

For Graduates

511-512. GRADUATE SEMINAR. (1:1:0 each)

Prerequisite: Graduate standing in chemistry. A seminar for graduate students and staff members. Required of all graduate students majoring in this department. May be taken more than once for credit.

5301. ADVANCED INORGANIC CHEMISTRY I. (3:3:0)

Prerequisite: Chem. 441-442. Atomic structure, nature of the chemical bond, periodic classification of the elements, and the chemistry of representative elements.

5302. ADVANCED INORGANIC CHEMISTRY II. (3:3:0)

Structure of coordination compounds, heteropoly acids, the chemistry of non-aqueous solvents, and other selected topics.

5303. NUCLEAR CHEMISTRY. (3:3:0)

Prerequisite: Chem. 5301. Theory of nuclear structure, natural and artificial radioactivity, radioactive tracers, and other selected topics.

5304. SELECTED TOPICS IN INORGANIC CHEMISTRY. (3:3:0)

Prerequisite: Consent of instructor. Consideration of special areas of inorganic chemistry not commonly included in other courses.

5117. SELECTED TOPICS IN ANALYTICAL CHEMISTRY. (1:1:0)

Prerequisite: Consent of instructor. Topics vary from year to year. Variable credit is achieved by multiple registrations. May be repeated for credit.

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)

Prerequisite: Chem. 5315. 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. An advanced survey of the principles and reactions of organic chemistry.

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. Since the topics may vary from year to year, may be repeated for credit.

5327. PHYSICAL ORGANIC CHEMISTRY. (3:3:0)

Prerequisite: Chem. 5321, 438. A consideration of the reactions and properties of organic compounds in the light of physicochemical principles.

5328. MECHANISMS OF ORGANIC CHEMISTRY. (3:3:0)

Prerequisite: Chem. 5327. Modern interpretations of organic reaction mechanisms and rearrangements.

5334. SELECTED TOPICS IN BIOLOGICAL CHEMISTRY. (3:3:0)

Since the topics may vary from year to year, this course may be repeated for credit.

5335. PHYSICAL BIOCHEMISTRY. (3:3:0)

Prerequisite: Chem. 436-437. Prerequisite or parallel: Chem. 5342. The 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. 438. Quantum mechanics, atomic and molecular spectra, valence theories, statistical mechanics, solids, solutions, and electrochemistry.

5343. COLLOIDAL CHEMISTRY. (3:2:3)

Prerequisite: Chem. 438.

5344. KINETICS OF CHEMICAL REACTIONS. (3:3:0)

Prerequisite or parallel: Chem. 5342. Solutions of rate equations for closed and open systems, modern theories of reaction rates in gases and in liquid solutions.

5346. ELECTROCHEMISTRY. (3:3:0)

Prerequisite: Chem. 438.

5347. ADVANCED THERMODYNAMICS. (3:3:0)

Prerequisite or parallel: Chem. 5342, Math. 434. Thorough study of basic principles of thermodynamics. Thermodynamics of complex chemical systems, modern developments in thermodynamics, irreversible processes, energetics.

5348. SELECTED TOPICS IN PHYSICAL CHEMISTRY (3:3:0)

Prerequisite: Consent of instructor. Since

the topics may vary from year to year, this course may be repeated for credit.

631-632. MASTER'S THESIS. (6)**731-732. RESEARCH. (3 each)**

Required of students working on the doctor's dissertation.

831-832. DOCTOR'S DISSERTATION. (6)

Required as the final registration for the dissertation.

CHEMICAL ENGINEERING

See listing of courses under "Courses in Chemical Engineering" in School of Engineering.

Department of Education and Philosophy

Professors:

Mr. Wallace, Head
Mr. Cooper
Mr. Jackson
Mr. Mecham

Mr. Barnett
Mr. Garlin
Mr. Livingston

Associate Professors:

Mr. Davidson
Mr. Fallon

Miss Evans
Mr. Little

Visiting Associate Professor:

Mrs. Wills

Assistant Professors:

Mr. Gammill
Mrs. Wheeler

Mr. Southall

Instructor:

Mrs. Corhn

Teaching Fellows:

Mr. Carruth
Mr. Schulze

Mr. Morlan

THE BACHELOR OF ARTS IN TEACHER EDUCATION

The standard requirements of the Bachelor of Arts Degree are of sufficient flexibility to enable those seeking certification to teach in the secondary school to incorporate within this curriculum the 24 hours of work in professional education required under the 1955 Teacher Certification Law and specified on the following page. The specific types of teaching certificates issued by the State of Texas, together with the various fields in which Texas Tech has approved programs, are described in detail in the General Information section of this bulletin on Page 21.

THE DEGREE OF BACHELOR OF SCIENCE IN EDUCATION

All students entering Texas Technological College after Sept. 1, 1955, and who expect to secure a certificate to teach in any subject at any level, must meet the requirements of the new law. The specific teaching fields in which Texas Tech has approved programs are listed on Pages 17-21 of this bulletin. Students preparing to teach in secondary schools who choose the broad (composite)

teaching field — described in the preceding reference— in either social science or science will not be required to have a minor if they are working toward the Degree of Bachelor of Science in Education. These students will follow one or the other of the following patterns of courses in lieu of the conventional major-minor pattern:

Students choosing the broad teaching field of social science will take 18 semester hours in government, 18 hours in history, 6 hours in economics, and 6 additional hours in social science for a total of 48 semester hours.

Students choosing the broad teaching field of science will take a minimum of 42 semester hours in science. This course work must be distributed in at least three of the science departments, but work taken in the Department of Geology should not exceed 8 semester hours. For the possible distribution of work including specific courses, see the programs of teacher education as outlined by the Departments of Biology, Chemistry, and Physics.

The Professional Education Curriculum at Texas Technological College is based upon the policies adopted by the State Board in 1955 and contains 24 semester hours of work

required under the new 1955 Certification Law as a part of an approved program for every person who expects to be certified to teach.* These specific courses and titles, together with the year in which each should be taken in order to avoid conflicts and semester-hour limitations in education, are as follows:

FOR ELEMENTARY TEACHERS

Freshman Year

Educ. 130-Intro to Educ.

Sophomore Year

Educ. 232-Educ. Psy.

Junior Year

Educ. 333-Curric. Devel. in Elem.

Educ.

Educ. 335-Elem. Educ. Meth.

Psy. 331-Child Psy.

Senior Year

Educ. 4326-Reading Devel. in

the Elem. Sch.

Educ. 431-Stud. Obs. and Tch.

in Elem. Sch.

Educ. 433-Adv. Stud. Tch.

in the Elem. Sch.

FOR SECONDARY TEACHERS

Freshman Year

Educ. 130-Intro. to Educ.

Sophomore Year

Educ. 232-Educ. Psy.

Junior Year

Educ. 330-Prin. of Secon. Educ.

Educ. 334-Curric. Devel. in the Sec.

Sch.

Educ. 336-Sec. Educ. Meth.

Psy. 335-Adol. Psy.

Senior Year

Educ. 432-Stud. Obs. and Tch.

in the Secon. Sch.

Educ. 434-Adv. Stud. Tch. in

the Secon. Sch.

Under the 1955 Teacher Certification Law, the preparation program for all teachers must include a minimum of 45 hours of general or liberal education. This must be distributed between the social sciences, the natural sciences including mathematics, and the humanities, with a minimum of 6 and a maximum of 18 hours in each. Each student who expects to teach should plan the freshman and sophomore years to include most of the required 45 hours of general education. In the junior and senior years the study plan should include the required work in the teaching major and minor for the secondary teacher, the content courses for the ele-

mentary teacher, and the balance or the Professional Education Curriculum. The overlapping of general education, the work in the teaching fields, and the Professional Education Curriculum is believed to be essential to an adequate preparation program for teachers.

The teacher education program at Texas Tech has five major purposes or goals: (1) to provide each prospective teacher with a comprehensive and balanced general education experience as a basic foundation to teach in the classroom and to serve as a citizen in the community; (2) to develop the teacher as a person through a well-rounded program as well as through the provision of 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; and (5) to develop the understandings, attitudes, and skills that are essential for effective teaching.

The courses designed to provide the broad basis upon which the professional curriculum for teachers at the elementary and secondary levels is projected, and which lead to the Degree of Bachelor of Science in Education, expressed in terms of semester hours, are as follows:

For Elementary Teachers

Course	Semester Credit Hours
1. English	12
2. Government	6
3. American history (3 of which may be in Texas history)	6
4. Laboratory science	14
5. Physical education	6
6. Mathematics	3
7. Music	6
8. Speech	3
9. Sociology	6
10. Philosophy	3
11. Anthropology	3
12. Child development	3
13. Economic geography	3
14. Applied arts	6
15. Sufficient electives, freshman & sopho- more physical education, band, or basic military or air science to total 126 or 128 semester hours and 138 grade points.	

*This requirement applies to all students who expect to be certified except those seeking certificates in vocational agriculture and home economics, music business education, and certain special all-level certification programs. These programs require the same amount of professional education as specified above but follow a different pattern of courses.

For Secondary Teachers

Course	Semester	Credit Hours
1. English	12
2. Government	6
3. American history (3 of which may be in Texas history)	6
4. Laboratory science	12-14
Secondary majors may substitute 6 hours of mathematics for 6 hours of science.		
5. Physical education	3
6. Speech or philosophy	3
7. Sociology	3
8. Mathematics (see above reference)	3
9. Teaching major	24-30
10. Teaching minor	18-24
11. Degree major and minor, sufficient electives, freshman and sophomore physical education, band, or basic military or air science, to total 126 or 128 semester hours and 138 grade points.	

Students preparing to teach in the elementary school are advised to follow the four-year schedule outlined below:

BACHELOR OF SCIENCE
IN EDUCATION

ELEMENTARY PROGRAM

Freshman Year

First Semester	Credit
Educ. 130—Found. of Educ.	3
Eng. 131—Col. Rhet.	3
*Biol. 133—Botany	3
Hist. 231—Hist. of U.S. to 1865	3
Free Elective	3
P.E., Band, or Basic ROTC	1
	16

Second Semester	Credit
Eng. 132—Col. Rhet.	3
*Biol. 134—Zoology	3
Hist. 232—Hist. of U.S. since 1865 or	
Hist. 235—Texas Hist.	3
Soc. 230—Intro. to Sociol.	3
Math. 135—Math. in Gen. Educ.	3
P.E., Band, or Basic ROTC	1
	16

Sophomore Year

First Semester	Credit
Eng. 231—Mast. of Lit.	3
Govt. 233—Amer. Govt., Org.	3
Chem. 141—Gen. Chem. or Geol. 143—Gen. Geol., or Phys. 141—Gen. Phys.	4
*Music 231—Fund. of Music for Elem. Classrm. Tchrs.	3
Ch. D. 233—Child Growth and Devel.	3
P.E., Band, or Basic ROTC	1
	17

Second Semester	Credit
Educ. 232—Educ. Psy.	3
Eng. 232—Mast. of Lit.	3
Chem. 142—Gen. Chem., or Geol. 144—Gen. Geol., or Phys. 142—Gen. Phys.	4
*Music 232—Music for Elem. Tchrs.	3

*These courses are currently classified as elementary content by the Texas Education Agency.

**Secondary majors may take 14 semester hours of laboratory science, or 6 semester hours of mathematics and 6-8 semester hours of science. In certain fields exceptions to this may be made by the student with the approval of the appropriate department head. Students who have had a biological science in high school should take a physical science to balance their program in basic science arts.

Govt. 234—Amer. Govt., Func.	3
P.E., Band, or Basic ROTC	1
	17

Junior Year

First Semester	Credit
Educ. 333—Curric. Devel. in Elem. Sc.	3
Psy. 331—Child Psy.	3
*Ap. A. 337—Art in Elem. Educ.	3
*P. E. 230—Health Educ. in Elem. and Sec. Sch.	3
Spch. 239—Spch. Dev. for Tchrs. Comp.	3
	15

Second Semester	Credit
Educ. 335—Elem. Meth.	3
*Ap. A. 338—Art in Elem. Educ.	3
*Eco. 237—Eco. Geog.	3
*P.E. 233—P.E. for Elem. Sch. Tchrs.	3
Free Elective	3
	15

Senior Year

First Semester	Credit
Educ. 4326—Reading in Elem. Sch.	3
Educ. 431—Stud. Obs. and Tch. in Elem. Sch.	3
Phil. 230—Intro. to Phil.	3
Anthro. 232—Cult. Anthro.	3
Free Elective	3
	15

Second Semester	Credit
Educ. 433—Adv. Stud. Obs. and Tch. in Elem. Sch.	3
*Educ. 4325—Children's Lit.	3
*Ch. Dev. 433—Fam. Rel., or Soc. 235—Marriage	3
Free Elective	3
Hist. Elective	3
	15

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 a teaching major and a teaching minor, since completion of most of the work in these fields is required as prerequisite to student teaching.

BACHELOR OF SCIENCE
IN EDUCATION
SECONDARY PROGRAM

Freshman Year

First Semester	Credit
Educ. 130—Found. of Educ.	3
Eng. 131—Col. Rhet.	3
**Math	3
Hist. 231—Hist. of U.S. to 1865	3
**Science	3-4
P.E., Band, or Basic ROTC	1-2
	16-18

Second Semester	Credit
Eng. 132—Col. Rhet.	3
Soc. 230—Intro. to Sociol.	3
*Math.	3
Hist. 232—Hist. of U.S. since 1865 or Hist. 235—Texas Hist.	3
*Science	3-4
P.E., Band or Basic ROTC	1-2

16-18

Sophomore Year

First Semester	Credit
Speech 239—Spch. for Teachers or Phil. 230—Intro. to Philosophy	3
Eng. 231—Mast. of Lit.	3
Govt. 233—Amer. Govt., Org.	3
P.E. 230—Health Educ. in the Elem. and Secon. Sch.	3
Teaching Major	3
P.E., Band or Basic ROTC	1

16

Second Semester	Credit
Educ. 232—Educ. Psy.	3
Eng. 232—Mast. of Lit.	3
Govt. 234—Amer. Govt., Func.	3
Teaching Major	3
Teaching Minor	3
P.E., Band or Basic ROTC	1

16

Junior Year

First Semester	Credit
Educ. 330—Prin. of Secon. Educ.	3
Psy. 335—Adol. Psy.	3
Teaching Major	6
Teaching Minor	3
Free Electives	3

18

Second Semester	Credit
Educ. 334—Curric. Dev. in Secon. Sch.	3
Educ. 336—Secon. Educ. Meth.	3
Teaching Major	3
Teaching Minor	3
Educ. Elective—Educ. 430, 4315 or 4331.	3

15

Senior Year

First Semester	Credit
Educ. 432—Stud. Obs. and Tch. in Secon. Sch.	3
Teaching Major	6
Teaching Minor	3
Free Electives	3

15

Second Semester	Credit
Educ. 434—Adv. Stud. Obs. and Tch. in Secon. Sch.	3
Teaching Major	3
Teaching Minor	6
Educ. Elective—Educ. 430, 4315 or 4331.	3

15

Note that in the above curriculum for secondary education, it is imperative that the student select and be-

gin work in the major and minor teaching fields in the sophomore year in order to meet the prerequisites for student teaching. With the approval of the deans concerned, teaching majors and minors may also be taken in other schools of the College. Ordinarily, the teaching major calls for completion of a minimum of 24 semester hours and the teaching minor a minimum of 18 semester hours. Certain more general teaching majors are available, such as social science, general science, and foreign language. Such majors ordinarily call for completion of a minimum of 36 semester hours. The teaching major and minor 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 as outlined elsewhere in this bulletin. Certificate requirements are outlined elsewhere in this bulletin.

The courses indicated in the above, for both elementary and secondary education, may be used to satisfy requirements for teachers' certificates valid in Texas and other states. Students seeking placement in teaching positions in other states may consult the Head of the Department of Education for assistance in obtaining information about certification requirements in these other states.

Admission to Student Teaching.

Every person who expects to teach is required to have 6 semester hours of work in student observation and teaching. The student teaching experience, which is scheduled for the first and second semester of the senior year, is regarded as one of the most important phases of the entire preparation program. For this reason no student will be permitted to enroll in more than 15-16 hours of work while taking student teaching without the approval of the Director of Teacher Education.

Beginning with fall semester of

*Secondary majors may take 14 semester hours of laboratory science, or 6 semester hours of mathematics and 6-8 semester hours of science. In certain fields exceptions to this may be made by the student with the approval of the appropriate department head. Students who have had a biological science in high school should take a physical science to balance their program in basic science arts.

1959-60, each person expecting to receive a teaching certificate in any subject must meet the following admission standards to student teaching. These standards, developed through the cooperation of the Department of Education and the departments in which teaching majors and minors may be selected, were recommended by the Council on Teacher Education and approved by the Council of Deans. They will be administered by the Office of Director of Teacher Education.

1. The student must have completed approximately 90 hours of college work, including the requisite courses in professional education and a majority of the work required in the teaching major and in the teaching minor.

2. All students except those in agricultural education and home economics education must file an application with the Department of Education to enroll in student teaching at the time of registration for the first semester of the junior year. This is done in order to permit proper planning and placement of students in their teaching field.

3. The student must pass the same health examination as that required for teachers in the school system in which student teaching is done. The examination center will be specified at the filing of the application to student teaching.

4. The student must present evidence of freedom from extreme handicaps that would be detrimental to classroom teaching.

5. All students must have a grade-point average of 1.00 on all college work. In addition, each secondary teacher must have a 1.25 grade-point average in the teaching major, in the teaching minor, and in the professional education courses. The elementary teacher must have a 1.25 average in the content courses and in the professional education courses.

6. The student must demonstrate a proficiency in the use of the English language as measured by appropriate standardized tests. These tests

include such areas as English usage, sentence structure and spelling.

In meeting the standards described above, all transfer students will be considered as special cases.

In addition to the courses listed below, certain others, particularly in methods, may be scheduled. These courses may be found in the various departments of the College; for example, Eng. 4336, Teaching of English in the Secondary Schools, is described in the Department of English. Such courses do not substitute for any required professional education course.

For Undergraduates

130. FOUNDATIONS OF EDUCATION. (3:3:0)

Introduction to education and teaching as a profession. Emphasis on purposes and function of education and the nature and importance of teaching in our democracy.

232. **EDUCATIONAL PSYCHOLOGY.** (3:3:0)
Prerequisite: Sophomore classification. A study of educational and psychological principles as basic knowledge in professional education and in teaching.

431. STUDENT OBSERVATION AND TEACHING IN THE ELEMENTARY SCHOOL. (3:3:0)

Prerequisite: Attainment of admission standards of student teaching. Completion of approximately 90 hours' work, Educ. 333, 335, and Psy. 331, or equivalents, plus a major portion of the work in the content courses.

432. STUDENT OBSERVATION AND TEACHING IN THE SECONDARY SCHOOL. (3:3:0)

Prerequisite: Attainment of admission standards to student teaching. Completion of approximately 90 hours' work, 18 hours of education including Educ. 330, 334, and Psy. 335, plus a major portion of the course work in the teaching major and minor.

433. ADVANCED STUDENT OBSERVATION AND TEACHING IN THE ELEMENTARY SCHOOL. (3:3:0)

Prerequisite: Same as Educ. 431.

434. ADVANCED STUDENT OBSERVATION AND TEACHING IN THE SECONDARY SCHOOL. (3:3:0)

Prerequisite: Same as Educ. 432.

For Undergraduates and Graduates

330. PRINCIPLES OF SECONDARY EDUCATION. (3:3:0)

Prerequisite: Second semester sophomore classification. Educ. 130 and 232 or equivalents. Introduction to secondary education. Basic principles underlying the secondary school program.

333. ELEMENTARY CURRICULUM DEVELOPMENT. (3:3:0)

Prerequisite: Junior classification, Educ. 130 and 232 or equivalents. Basic principles underlying the organization and development of the curriculum and methods in the elementary school.

334. CURRICULUM DEVELOPMENT IN SECONDARY EDUCATION. (3:3:0)

Prerequisite: Junior classification, Educ. 130 and 232, or equivalents. Foundations of curriculum development, patterns of organization, principles and procedures, curriculum areas, resource units, and issues in curriculum development.

335. ELEMENTARY EDUCATION METHODS. (3:3:0)

Prerequisite: Junior classification, Educ. 130 and 232 or equivalents. Continuation of Educ. 333 with increased emphasis on teaching and evaluation.

336. SECONDARY EDUCATION METHODS. (3:3:0)

Prerequisite: Junior classification, Educ. 130, 232, and 330, or equivalents. Foundations of teaching, methods and techniques, observation of teaching, evaluation and management problems related to teaching.

338. ELEMENTARY EDUCATIONAL STATISTICS. (3:3:0)

Prerequisite: Junior classification and 9 hours of education. A foundation course in the application of statistical analysis to educational data.

430. HISTORY AND PHILOSOPHY OF EDUCATION. (3:3:0)

Prerequisite: Junior classification and 9 hours of education. Influences of historical developments and philosophical concepts upon education as the foundation of our American democracy.

4315. AUDIO-VISUAL EDUCATION. (3:3:0)

Prerequisite: Junior classification. 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.

4325. CHILDREN'S LITERATURE. (3:3:0)

Prerequisite: Junior classification. Prose and poetry for children under 12, including standards for judging and criteria for selecting children's books.

4326. READING DEVELOPMENT IN THE ELEMENTARY SCHOOL. (3:3:0)

Prerequisite: Educ. 333, 335, and Psy. 331 or equivalents. Methods and materials in teaching reading in the elementary school.

4331. FOUNDATIONS OF EDUCATIONAL SOCIOLOGY. (3:3:0)

Prerequisite: Senior classification and 9 hours in education and educational psychology. A study of the principles of educational sociology believed to be 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, educational psychology, and psychology. A survey of education for exceptional children including major developments in special education.

For Graduates

5139. ADVANCED EDUCATION WORKSHOPS IN TEACHING AND ADMINISTRATION. (1-6)

Prerequisite: Graduate classification, 18 hours in education and educational psychology, and experience as a teacher or administrator. A series of workshops on such emphases as guidance, budgeting, school business services, audio-visual education, curriculum, special education, etc.

530. ADVANCED EDUCATIONAL PSYCHOLOGY. (3:3:0)

Prerequisite: Graduate classification with 18 hours of education and educational psychology. Designed for graduate students with emphasis on the application of educational psychological principles to teaching at all levels.

532. PHILOSOPHY OF EDUCATION. (3:3:0)

Prerequisite: Graduate classification and 18

hours in education and educational psychology. Comparative analysis of major social philosophies and their application to the field of education in our American democracy.

533. PUBLIC SCHOOL ADMINISTRATION. (3:3:0)

Prerequisite: Graduate classification and 18 hours of education and educational psychology. Detailed analysis of the principles and problems involved in the organization and administration of the public schools.

534. ADVANCED EDUCATIONAL SOCIOLOGY. (3:3:0)

Prerequisite: Graduate classification, 18 hours in education including 3 hours in educational sociology. Advanced study and application of sociological principles as basic knowledge in professional education.

535. FEDERAL, STATE, COUNTY AND LOCAL EDUCATIONAL ADMINISTRATION. (3:3:0)

Prerequisite: Graduate classification and 18 hours in education and educational psychology. Emphasis on the responsibility for education in America, including the relationship between the various levels of educational administrations.

536. ELEMENTARY SCHOOL ADMINISTRATION. (3:3:0)

Prerequisite: Graduate classification and 18 hours in education and educational psychology. Emphasis on elementary school organization, personnel, curriculum development, details of modern administration and supervision.

537. SECONDARY SCHOOL ADMINISTRATION. (3:3:0)

Prerequisite: Graduate classification and 18 hours in education and educational psychology. Emphasis on 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: Graduate classification, 18 hours in education, including Educ. 4315. Emphasis on state, regional and local audio-visual programs; analysis of 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: Graduate classification and 18 hours in education and educational psychology, including Educ. 533, or equivalent. Emphasis on internal business management of schools with emphasis on activity funds, teacher welfare, special services, lunchroom transportation, and purchasing and accounting of supplies and materials.

5312. SUPERVISION IN THE ELEMENTARY SCHOOL. (3:3:0)

Prerequisite: Graduate classification and 18 hours in education and educational psychology. Supervision in the elementary school with emphasis on problems and procedures.

5313. SUPERVISION IN THE SECONDARY SCHOOL. (3:3:0)

Prerequisite: Graduate classification and 18 hours in education and educational psychology. Supervision in the secondary school with emphasis on problems and procedures.

5315. INTRODUCTION TO CONTINUING EDUCATION. (3:3:0)

Prerequisite: Graduate classification, 18 hours in education and educational psychology. Analysis of social and economic changes and individual needs as a basis for programs in continuing education. Emphasis on the research and literature including psychological principles underlying adult learning.

5316. THE JUNIOR COLLEGE. (3:3:0)

Prerequisite: Graduate classification and 18 hours in education and educational psychology. Emphasis on the emergent junior college in terms of terminal education and senior college preparation. Review of best practice in developing junior college programs.

5317. THE JUNIOR HIGH SCHOOL (3:3:0)

Prerequisite: Graduate classification and 18 hours of education and educational psychology. The philosophy, organization, program, special problems, and emerging role of the junior high school. Survey and analysis of research and best practices.

5318. SELECTION AND EVALUATION OF AUDIO-VISUAL MATERIALS. (3:3:0)

Prerequisite: Graduate classification and 18 hours in education, including Educ. 4315. Emphasis on 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: Graduate classification and 18 hours in education, including Educ. 4315. Emphasis on 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 one time for credit.

5322. FOUNDATIONS OF EDUCATIONAL RESEARCH. (3:3:0)

Prerequisite: Graduate classification and 18 hours in education and educational psychology. Study and application of methods of educational research. Methods of obtaining, processing, interpreting, and utilizing significant educational data.

5323. ADVANCED EDUCATIONAL STATISTICS. (3:3:0)

Prerequisite: Graduate classification and 3 hours in educational statistics. Application of statistical analysis to educational data; the 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: Graduate classification, 18 hours in education and educational psychology, and Educ. 533. Legal structure of education in America with emphasis on school laws in Texas.

5329. ORGANIZATION AND PROGRAM PLANNING IN CONTINUING EDUCATION. (3:3:0)

Prerequisite: Graduate classification, or approval of the Department of Education. Organizational principles and procedures in planning and developing programs in continuing education in school-community situations.

5331. HUMAN DEVELOPMENT IN EDUCATION. (3:3:0)

Prerequisite: Graduate classification and 18 hours in education and educational psychology. Emphasis on biological, social, and psychological interrelationships and implications for classroom teaching and learning at all levels.

5332. GROUP PROCESSES IN EDUCATION. (3:3:0)

Prerequisite: Graduate classification, or approval of the Department of Education. Examination of current theories of leadership

with emphasis on group processes and techniques of organization and communication in both formal and informal educational situations.

EDUC. 5334. TEACHING READING IN THE ELEMENTARY SCHOOL. (3:3:0)

Prerequisite: Graduate classification, 12 hours in education and educational psychology. A study of 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: Eligibility for Provisional Certificate with elementary endorsement (or Educ. 333 and 335 or equivalents). A study of the development of arithmetic and its educative function in the elementary school curriculum.

5342. DEVELOPING READING PROGRAMS IN ELEMENTARY EDUCATION. (3:3:0)

Prerequisite: Eligibility for Provisional Certificate with elementary endorsement (or Educ. 333 and 335 or equivalents). Critical examination of the 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: Graduate classification. Eligibility for Provisional Certificate with elementary endorsement (or Educ. 333 and 335, or equivalents), and 6 hours of science. Emphasis on the 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: Graduate classification, 12 hours of English and/or speech including 6 hours of English composition. Eligibility for Provisional Certificate with elementary endorsement (or Educ. 333 and 335, or equivalents). Emphasis on the practical applications of research findings and modern theory as related teaching and organizing the language arts in the elementary school.

5345. DEVELOPING SOCIAL STUDIES PROGRAMS IN ELEMENTARY EDUCATION. (3:3:0)

Prerequisite: Eligibility for Provisional Certificate with elementary endorsement (or Educ. 333 and 335 or equivalents). Analysis of various objectives, patterns, and principles of organization of social studies in the elementary schools including teaching materials and procedures.

5346. FUNDAMENTALS OF CURRICULUM DEVELOPMENT. (3:3:0)

Prerequisite: Graduate classification and 18 hours in education and educational psychology. A study of the 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.

5347. DEVELOPING CURRICULUM AND INSTRUCTIONAL MATERIALS IN THE ELEMENTARY SCHOOL. (3:3:0)

Prerequisite: Educ. 5346. Practical problems in developing projects, materials, and curricula for the elementary school according to accepted psychological principles, sound educational theory, and objectives of education.

5348. DEVELOPING CURRICULUM AND INSTRUCTIONAL MATERIALS IN THE SECONDARY SCHOOL. (3:3:0)

Prerequisite: Educ. 5346. Practical problems in developing projects, materials, and curricula for the secondary school according to accepted psychological principles, sound educational theory, and objectives of education.

5349. ORGANIZING AND ADMINISTERING THE INSTRUCTIONAL IMPROVEMENT PROGRAM. (3:3:0)

Prerequisite: Graduate classification, 18 hours in education and educational psychology, and Educ. 5346, or equivalent. Principles and procedures in organizing programs of system-wide curriculum and instructional improvement.

5351. GENERAL EDUCATION SEMINAR. (3:3:0)

Prerequisite: Advanced graduate classification and approval of admissions committee of Department of Education. Survey of the whole field of professional education. Basic course for second stage of graduate work in education; to be taken at the beginning of the advanced graduate program.

5352. SEMINAR IN HISTORY AND PHILOSOPHY OF EDUCATION. (3:3:0)

Prerequisite: Graduate classification and 18 hours in education and educational psychology. Discussion and research in history and philosophy of education in a comprehensive sense with application of derived principles to the specific needs and interests of the individual student.

5353. COMPARATIVE EDUCATION. (3:3:0)

Prerequisite: Graduate classification and 18 hours in education and educational psychology. A comprehensive and comparative study of the educational systems of the major countries in recent and current times. Individual attention to problems of special concern.

5354. SEMINAR IN EDUCATIONAL SOCIOLOGY. (3:3:0)

Prerequisite: Graduate classification and 18 hours in education and educational psychology. Comprehensive review of the literature in the specific field of educational sociology. Analysis of the sociological significance of current problems in our democracy and the world as related to the field of professional education.

5355. SEMINAR IN ELEMENTARY EDUCATION. (3:3:0)

Prerequisite: Advanced graduate classification, 18 hours in education and educational psychology and consent of advisory committee. Intensive study of trends in modern elementary education.

5356. SEMINAR IN SECONDARY EDUCATION. (3:3:0)

Prerequisite: Graduate classification and 18 hours in education and educational psychology. Intensive study of trends in modern secondary education.

5357. THE ADMINISTRATION OF THE JUNIOR COLLEGE. (3:3:0)

Prerequisite: Graduate classification, 18 hours in education and educational psychology, including 3 hours in educational administration or supervision. Emphasis on major principles, organizations, problems, techniques, and trends in the administration of the junior college.

5359. SEMINAR IN SUPERVISION (3:3:0)

Prerequisite: Advanced graduate classification and 24 hours in education including supervision. Intensive research in current practices as they have developed in the field of supervision.

5362. SEMINAR IN CONTINUING EDUCATION. (3:3:0)

Prerequisite: Graduate classification, or ap-

proval of the Department of Education. An intensive study of special problems in continuing education.

5363. PROBLEMS IN AUDIO-VISUAL EDUCATION. (3:3:0)

Prerequisite: Graduate classification and 24 hours in education, including Educ. 4315 and two advanced courses in audio-visual education. Emphasis on 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 EDUCATIONAL PSYCHOLOGY. (3:3:0)

Prerequisite: Graduate classification, 18 hours of education and educational psychology, including Educ. 530. An intensive study on individual problems in the field of educational psychology.

5366. THE ADMINISTRATION OF SCHOOL STAFF PERSONNEL. (3:3:0)

Prerequisite: Graduate classification, 18 hours in education and psychology, including Educ. 533. Emphasis on principles and procedures involved in selection, organization, and administration of the school personnel; evaluation of teaching efficiency, merit rating, and in-service education.

5367. SCHOOL FINANCE. (3:3:0)

Prerequisite: Graduate classification, 18 hours in education and educational psychology including Educ. 533, 539, or equivalents. Basic theories, principles, and problems involved in school finance as applied to taxation, budgeting, school construction, operation, and maintenance.

5369. SCHOOL PUBLIC RELATIONS (3:3:0)

Prerequisite: Graduate classification, 18 hours of education and educational psychology. The cooperative development of school-community relationships and mutual understanding of the school's purposes, functions, achievements, and needs. Emphasis is placed on problems of organization, use of media, processes, citizen advisory committees, and evaluation.

5371. SUPERVISION. (3:3:0)

Prerequisite: Graduate classification, 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: Graduate classification and 12 hours in education and educational psychology. Designed to acquaint the classroom teacher, principal, and counselor with the understanding and knowledges needed in organizing a school guidance program to serve the needs of students at both the elementary and secondary levels.

5373. EVALUATION. (3:3:0)

Prerequisite: Graduate classification and 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.

631-632. THESIS SEMINAR (6)

Required of students following the master's thesis degree plan. Selection of and work upon an action research problem or a course research problem.

731, 732 DISSERTATION SEMINAR. (3 each)

Required of students working on the doctor's dissertation.

831-832. DOCTOR'S DISSERTATION. (6)

Required as the final registration for the dissertation.

PHILOSOPHY

Students may major or minor in philosophy. By special permission, the following courses in other fields may be applied on the major in philosophy: Govt. 332 and 333., Educ. 430 and 532.

For Undergraduates**230. INTRODUCTION TO PHILOSOPHY. (3:3:0)**

Prerequisite: Sophomore classification. Problems involved in the interpretation of the nature of knowledge, reality, and value.

238. ETHICS. (3:3:0)

Prerequisite: Sophomore classification. Problems of individual and social conduct.

For Undergraduates and Graduates**332. HISTORY OF PHILOSOPHY. (3:3:0)**

Prerequisite: Junior classification. Philosophical systems developed by the great philosophers of the world.

333. DEVELOPMENT OF AMERICAN PHILOSOPHY. (3:3:0)

Prerequisite: Junior classification. A study of peculiarly American philosophy beginning with colonial times, ending with recent trends.

335. ORIENTAL PHILOSOPHIES. (3:3:0)

Prerequisite: Junior classification. Survey of the views of important philosophic thinkers of the Orient, with particular emphasis upon those of China and India.

337. LOGIC. (3:3:0)

Prerequisite: Junior 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.

431. AESTHETICS. (3:3:0)

Prerequisite: Senior classification or consent of instructor. Interpretations of the nature of beauty and analysis of the aesthetic experience.

432. PHILOSOPHY OF VALUE. (3:3:0)

Prerequisite: Senior classification or consent of instructor. Analysis of the nature and validity of values; exploration of the possibility of an integrated value system.

436. PHILOSOPHY OF RELIGION. (3:3:0)

Prerequisite: Senior classification or consent of instructor. Survey of historical and contemporary religious movement.

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**5335. STRUCTURE AND DYNAMICS OF PHILOSOPHICAL THOUGHT. (3:3:0)**

Prerequisite: Graduate classification. An analytical and historical inquiry into the major areas of philosophical speculation; purpose includes the development of a clearer interpretation of the historical movement of philosophical ideas.

Department of English

Professors:

Mr. Camp, Head
Mr. Gates
Mr. Gunn
Mr. Strout

Mr. Allen
Mr. Gillis
Mr. McCullen

Associate Professors:

Mr. Bowling
Mr. Murphy

Mr. Guilds
Mr. Nall

Assistant Professors:

Miss Bumpass
Mrs. Carter
Mr. Lambert

Miss Carlock
Miss Green
Miss Miles

Instructors:

Mrs. Boze
Mr. Daniel
Mr. Eddleman
Mr. Godfrey
Mr. Kelley
Mr. Lacy
Mrs. Reeves
Mrs. Russell
Mrs. Terrell
Mrs. Tunnell
Mr. Young

Mr. Bruce
Mr. Davis*
Mrs. Gahring
Mrs. Hilton
Mr. Kinnamon
Miss Lewis
Mr. Rushing*
Mrs. Strout
Mrs. Tracy
Mrs. Welborn

Teaching Fellows:

Mrs. Benton
Mrs. Hefley
Mrs. Todasco
Mrs. Wall

Mrs. Foreman
Mrs. Sanders
Mr. Varvel

The Department of English offers a major program for those seeking the Degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy.

English 131-132 or 133-134, 231-232 are prerequisites for all English major or minor programs for the B.A. Degree.

So that the English major or minor may achieve a fuller acquaintance with the various fields of English and American language and literature, the minimum requirements are:

English majors and
teaching majors 30 hours

at least one advanced course in each
of the four groups below.

English teaching
minors 21 hours

at least one course in three of the
groups below

English minors 18 hours
any two advanced courses

The four groups of advanced courses
are:

I. English literature before 1660:
335, 430, 432, 434, 4314, 4331,
4332

II. English literature after 1660:
337, 4311, 4312, 435, 436, 4319,
4327, 4328

III. American literature: 332,
4323, 4324, 4325, 4326, 4329

IV. Other courses in language and
literature: 331, 333, 334, 336,
437, 438, 439, 4333, 4334, 4336

A maximum of two 300 (junior)
courses may be selected by majors
and teaching majors; only one by a
teaching minor. The student major-

ing or minoring in English should consult with the Head of the English Department to make a degree plan. Substitutions or changes in the above requirements may be made only with his prior approval.

For electives any student with 12 hours of English (131-132, 231-232) is welcome to select any advanced course (300 or 400) that he wishes.

A student must receive at least a C on an advanced course in English if he wishes to have it count toward a major, minor, or teaching major or minor in English.

A graduate student who plans eventually to work for the doctorate and is now teaching in a college, or who plans to teach on the college level, will be required to complete a thesis for the M.A. Degree. Others may elect, subject to the approval of the Head of the Department, to complete a thesis or to pursue the 36-hour plan without a thesis.

A candidate for the Degree of Doctor of Philosophy will be accepted subject to the general requirements of the Graduate School. He must complete at least one graduate course in nine specific areas of English and American literature and should concentrate with additional courses in one of these fields (or in two or more closely related fields) in which he will write his dissertation. See the latest Bulletin of the Graduate School for more details.

An entering freshman is required to take a year's work in English courses which emphasize clear and effective writing. In order to place him in courses which will be most suitable to his abilities, he will take a standardized achievement test in English. If he makes an extremely low score on this test, he will be assigned to sections in English 031, **Remedial English**. English 031 must be passed before he is eligible for English 131. If his test score is satisfactory he will be assigned to English 131-132, **College Rhetoric**.

If his test score should indicate superior achievement, a special honors course, English 133, **Advanced Composition and Literature**, is pro-

vided. If he makes a C or better in English 133, he may continue in the honors course English 134. Those who make a D will continue with English 132; those who receive F's must take English 131. Those who make an A in English 131 will also be eligible for the honors sections of English 134.

Six hours of freshman English (131-132 or 133-134) are a prerequisite for all sophomore courses (231-232, 233, 234). English 233, **Technical Writing for Engineers** and English 234, **Technical Writing for Students of Agriculture**, are specialized sophomore-level courses for students in engineering and agriculture and may not be substituted for English 231 and 232, which are required courses for students in the Schools of Arts and Sciences, Business Administration, and Home Economics. Many students in engineering, may at the option of their major department, take English 231 and 232 instead of English 233.

A student who completes English 134 with a B or one who makes an A in English 132 may enroll in special honors sections of English 231 and 232.

A student from a foreign country, whose knowledge of English is inadequate for the regular freshman and sophomore courses, will enroll in a special section of English 131-132 and 231-232, where oral and written English and reading comprehension are stressed. Those foreign students who are advised to take English 231-232 in lieu of English 233 or 234, the technical writing courses, will be expected to take the full six hours of sophomore literature.

In order to stress the importance of using good English in all college work, a student must demonstrate an adequate command of correct and effective written English in all of his English courses, regardless of rank, or receive an F in the course.

For Undergraduates

031. REMEDIAL ENGLISH. (3:3:0)

Required of all entering freshmen whose scores on the English placement test show inadequate preparation for English 131. Emphasis on spelling, punctuation, grammar,

and remedial reading. Credit for this course will not be used to satisfy normal degree requirements. This course cannot be substituted for English 131.

131-132. COLLEGE RHETORIC. (3:3:0 each)

Essentials of correct and effective writing. Reading and discussing good literature.

133-134. ADVANCED COMPOSITION AND LITERATURE FOR FRESHMEN. (3:3:0 each.)

An honors course designed for those who demonstrate competence in English composition as measured by the English placement test. Expository, narrative, and descriptive writing. Reading of various types of literature.

231-232. MASTERPIECES OF LITERATURE. (3:3:0 each)

A careful study of outstanding literary masterpieces. In 231, Greek plays, Chaucer, Shakespeare, and Milton are read. In 232, instructors will select outstanding novels, poems, plays, or biographies written during the eighteenth, nineteenth, and twentieth centuries. Required course for most sophomores.

233. TECHNICAL WRITING FOR ENGINEERS. (3:3:0)

Prerequisite: 6 hours of freshman English. Techniques of verbal efficiency in the various media of engineering and scientific communication, with stress on report and research-report preparation and letter-writing. Required by most branches of engineering and by chemistry, and open to students of all sciences.

234. TECHNICAL WRITING FOR STUDENTS OF AGRICULTURE. (3:3:0)

Prerequisites: 6 hours of freshman English. Themes, reports, and much practical experience in writing. Required of sophomores in School of Agriculture.

331. THE SHORT STORY (3:3:0)

A careful study of some of the most noteworthy writers of the short story.

332. AMERICAN DRAMA. (3:3:0)

A survey of the great American plays, particularly contemporary plays.

333. MODERN EUROPEAN DRAMA. (3:3:0)

Representative plays from Ibsen to the more recent European dramatists.

334. CREATIVE AND PROFESSIONAL WRITING. (3:3:0)

Prerequisite: B or better in freshman English. Study and practice of techniques of creative and professional writing, requiring some attempt to obtain publication.

335. INTRODUCTION TO SHAKESPEARE. (3:3:0)

Outstanding comedies, tragedies, and histories.

336: MASTERPIECES OF WORLD LITERATURE. (3:3:0)

Representative ancient and medieval literature in English translations.

337. MAJOR VICTORIAN POETS. (3:3:0)

Careful study of the poetry of Tennyson, Browning, and Arnold.

3311-3312. LITERARY TOUR OF EUROPE: A TRAVEL COURSE. (6)

Prerequisite: Eng. 131-132 or equivalent. A travel course visiting important literary shrines in Europe. Lectures on and readings in European drama and English poetry and prose, with opportunities to see specimens of the drama (including Shakespeare) in stage production. Eng. 3311 can be substituted for Eng. 232 and Eng. 3312 can be taken for elective credit, or those who already have credit for 231-232 can count 3311-3312 for 6 hours of elective credit. Three hours of advanced credit may be applied toward an English major or English teaching major. This course is scheduled for the summer of 1959.

For Undergraduates and Graduates

430. MYTH AND ROMANCE. (3:3:0)

Major works of English literature from Beowulf through Chaucer and Malory with reference to classical, Christian, Celtic, and Teutonic origins.

432. SHAKESPEARE. (3:3:0)

Careful study of some of the outstanding plays of Shakespeare. (This course will not duplicate any material in Eng. 335.)

434. MILTON AND HIS AGE. (3:3:0)

A careful study of most of Milton's poetry and prose.

435. ENGLISH ROMANTICISM. (3:3:0)

Selections from the works of the Pre-Romanticists, Wordsworth, and Coleridge.

436. THE LATER ROMANTIC POETS. (3:3:0)

Selections from the poetry of Scott, Byron, Shelley, and Keats; biography and background.

437. ADVANCED GRAMMAR. (3:3:0)

Current theory and practice. Review of fundamentals. Consideration of English morphology and syntax in the light of their historical development and of modern methods of linguistic analysis.

438. HISTORY OF THE ENGLISH LANGUAGE. (3:3:0)

A study of the principal changes which the English language has undergone from the beginning to the present and the relationship of these changes to the cultural development of the English-speaking peoples.

439. AMERICAN ENGLISH. (3:3:0)

History, characteristics, and dialects of the English language in America.

4311. THE NEO-CLASSICAL AGE. (3:3:0)

Dryden, Rise of Journalism, Defoe, Addison, Steele, Swift, Pope.

4312. AGE OF JOHNSON. (3:3:0)

Detailed study of Samuel Johnson and his contemporaries: Boswell, Goldsmith, Walpole, Burke, and others.

4314. LITERATURE OF THE ENGLISH RENAISSANCE. (3:3:0)

Poetry and prose of the sixteenth and early seventeenth centuries.

4319. VICTORIAN LITERATURE. (3:3:0)

Outstanding poetry and prose of the nineteenth century. (Not to be taken by those who have credit in Eng. 337.)

4323. AMERICAN LITERATURE AND ITS BACKGROUNDS. (3:3:0)

The Puritan Influence, the Age of Reason, the Romantic Movement to Whitman.

4324. AMERICAN LITERATURE AND ITS BACKGROUNDS. (3:3:0)

From Whitman to the present time. A continuation of 4323, but either part may be taken separately.

4325. THE AMERICAN NOVEL TO 1900. (3:3:0)

Representative works by the outstanding American novelists of the nineteenth century.

4326. THE AMERICAN NOVEL AFTER 1900. (3:3:0)

Representative works by outstanding American novelists of the twentieth century.

4327. ENGLISH NOVEL FROM LYLY TO SCOTT. (3:3:0)

Development of the English novel. Reading examples from Elizabethan fiction, novels of Richardson, Defoe, Fielding, Austen, Scott.

4328. ENGLISH AND FOREIGN FICTION FROM 1825 TO 1910. (3:3:0)

Novels of Dickens, Thackeray, Hardy, Balzac, Tolstoy, and others.

4329. MODERN BRITISH AND AMERICAN POETRY. (3:3:0)

The major poets and poetic movements from Hardy and Robinson to the present.

4331. PRE-SHAKESPEAREAN DRAMA. (3:3:0)

From the beginnings through Marlowe.

4332. ELIZABETHAN DRAMA THROUGH 1642. (3:3:0)

From Marlowe to the closing of the theaters.

4333. PHILOSOPHICAL IDEAS IN LITERATURE. (3:3:0)

The evolution of philosophical ideas in English and American literature. (May be repeated for credit with permission of instructor.)

4334. LITERARY INTERPRETATION AND CRITICISM. (3:3:0)

A study of selected literary works in relation to the best literary critical theory.

4336. TEACHING OF ENGLISH IN THE SECONDARY SCHOOLS. (3:3:0)

Problems of teaching English in the secondary school. Study of effective methods and materials. It may be counted as English or education by English majors.

4351. APPRECIATION OF LITERATURE OF WESTERN CIVILIZATION. (3:3:0)

A careful study in English of certain of the literary masterpieces of the Western World from the fourteenth century through the twentieth.

For Graduates

511. RESEARCH SEMINAR. (1)

Seminar for staff and graduate degree candidates. Graduate students enrolled for the first year of their program will meet for a second hour of study in Eng. 521. All graduate students should enroll in this seminar whenever it is offered.

521. BIBLIOGRAPHY AND METHODS OF LITERARY RESEARCH. (2)

Required of first-year graduate students. English 521 is coordinated with non-credit enrollment in English 511.

530. THE AGE OF CHAUCER. (3:3:0)

This course may be repeated for credit.

533. STUDIES IN RENAISSANCE LITERATURE. (3:3:0)

A seminar in English literature from 1500 to 1660, with the exception of Shakespeare's works. This course may be repeated for credit.

534. OLD ENGLISH. (3:3:0)

A study of the Old English language and of its literature, with special emphasis upon Beowulf.

535. STUDIES IN NINETEENTH CENTURY ENGLISH LITERATURE. (3:3:0)

This course may be repeated for credit.

536. STUDIES IN AMERICAN LITERATURE TO 1865. (3:3:0)

This course may be repeated for credit.

537. STUDIES IN AMERICAN LITERATURE AFTER 1865. (3:3:0)

May be repeated once for credit.

538. STUDIES IN THE ENGLISH ROMANTIC POETS. (3:3:0)

This course may be repeated for credit.

539. STUDIES IN EIGHTEENTH LITERATURE. (3:3:0)

This course may be repeated for credit.

5311. STUDIES IN ENGLISH LITERATURE OF THE SEVENTEENTH CENTURY. (3:3:0)

May be repeated once for credit.

5319. STUDIES IN SHAKESPEARE. (3:3:0)

This course may be repeated for credit.

5322. STUDIES IN THE LITERATURE OF THE SOUTHWEST. (3:3:0)

The structure of English and of related languages. Current studies in grammar, phonetics, spelling, regional dialects, and standards of usage. Designed for graduate students in elementary education, but open to English majors with the consent of the department head.

631-632. MASTER'S THESIS. (6)**731, 732. RESEARCH.** (3 each)**831-832. DOCTOR'S DISSERTATION.** (6)

Department of Foreign Languages

Professors:

Mr. Dowling, Head
Mr. Hamilton

Mrs. Gates
Mr. Qualia

Associate Professors:

Miss Frank
Mrs. Tucker

Mr. Strehli

Assistant Professors:

Mr. Alexander
Mr. Hull

Miss Boney
Mr. Oberhelman

Instructors:

Mrs. Alexander

Miss Horvath

The Department of Foreign Languages offers instruction in French, German, Greek, Latin, and Spanish. Portuguese may be offered when there is demand.

Courses numbered 131 suppose no previous study of the language. For students who have had previous study in a language, placement tests are offered at the beginning of each semester to aid students and counselors in determining the level at which study should be continued. Normally, 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 or 333 course.

Major. Sufficient work is offered for a major in French, German, or Spanish. Either 36 hours in the major language or 24 hours in the major and 12 hours in another language approved by the Department are required.

Minor. A minor may be obtained in French, German, Latin, and Spanish. A total of 18 hours in one language is required.

Teaching Major. For a major for purposes of teacher certification, Methods 4311 and at least 24 hours in one language, including 12 hours in courses at the 400 level, are required.

Teaching Minor. A teaching minor for teacher certification requires 18

hours in one language. In the modern languages at least 6 hours must be in courses at the 400 level. In Latin at least 12 hours must be in courses at the 300 level.

Grade Requirements for Majors and Minors. 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.

Students who wish to major or minor in a foreign language should consult the Head of the Department.

Bilingual Secretarial Program. For the description of this program see Page 25.

Latin American Area Studies. For the language courses required for a major in Latin American Area Studies see Page 26.

Graduate Courses. Courses for graduate students are offered in French, German, Spanish, and Methods. For further information see the Bulletin of the Graduate School.

Methods of Instruction. To help students obtain a functional acquaintance with the language studied, the Department seeks to employ the most effective techniques and materials available for classroom instruction. In addition to the usual textbooks, extensive use is made of a variety of audio-visual resources. These include mounted pictures, charts, maps, film strips, slides, records, tape recordings, and puppets. In courses in the modern languages, the language studied is used in the classroom as much as possible.

Language Laboratory. All lan-

guage students are urged to make regular use of the language lab. It is designed and equipped to give them an opportunity for individual practice which will insure satisfactory progress in their ability to understand and speak the language being studied.

Language Clubs. The Department sponsors a student club for each of the languages usually offered: French, German, Latin, and Spanish. All students interested in the foreign culture or language may become members. Among other activities and projects, the clubs frequently sponsor the showing of foreign films and stage plays in the foreign language with members as actors.

Honor Societies. Two national honorary societies, Pi Delta Phi for students of French, and Sigma Delta Pi for students of Spanish, are represented on the campus by active chapters sponsored by the Department.

*For Undergraduates

FRENCH

131-132. A BEGINNING COURSE IN FRENCH. (3:3:0 each)

Oral practice, elementary reading, and grammar.

231-232. A SECOND COURSE IN FRENCH. (3:3:0 each)

Prerequisite: Fr. 131-132, 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: Fr. 231-232, or the equivalent. Reading of the little masterpieces of the nineteenth century. A study of the cultural background. Conversation, composition, and grammar review. Conducted chiefly in French.

GERMAN

131-132. A BEGINNING COURSE IN GERMAN. (3:3:0 each)

Oral practice, elementary reading, and grammar.

231-232. A SECOND COURSE IN GERMAN. (3:3:0 each)

Prerequisite: Ger. 131-132, 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. 131-132, or two units of high school German. The 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. Reading of representative short stories, novels, dramas, and lyrics. Composition and conversation based on readings. Conducted chiefly in German.

GREEK

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.

LATIN

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. Especially recommended for students preparing for law or medicine as well as those electing Latin for degree requirements.

133. LATIN AND GREEK TERMINOLOGY. (3:3:0)

Practical Latin and Greek, especially for students majoring in scientific or professional courses. The minimum essentials of Latin and Greek grammar, training in the analysis of English words by study of Latin and Greek roots, prefixes, and suffixes. Word lists, charts, and myths relating to special subjects. 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. This course begins with a review of Latin grammar.

331-332. LATIN READINGS. (3:3:0 each)

Prerequisite: Lat. 231-232, or three or four units of high school Latin. The nature and content of this course will vary to meet the needs of individual students. This course may be repeated for credit with the consent of the instructor.

SPANISH

131-132. A BEGINNING COURSE IN SPANISH. (3:3:0 each)

Oral practice, elementary reading and grammar.

231-232. A SECOND COURSE IN SPANISH. (3:3:0 each)

Prerequisite: Span. 131-132, or two units of high school Spanish. Reading, cultural background, conversation, and composition.

331-332. INTRODUCTION TO SPANISH LIFE AND LITERATURE. (3:3:0 each)

Prerequisite: Span. 231-232, or three or four units of high school Spanish. The history, geography, literature, and customs of Spain. Reading of representative novels, dramas, and lyrics of the nineteenth century. A review of grammar. Composition and conversation based on readings. Conducted chiefly in Spanish. Span. 331-332 and 333-334 may not both be counted toward a degree.

333-334. INTRODUCTION TO SPANISH AMERICAN LIFE AND LITERATURE. (3:3:0 each)

Prerequisite: Span. 231-232, or three or

four units of high school Spanish. The history, geography, literature, and customs of Spanish American countries. A review of grammar. Composition and conversation based on readings. Conducted chiefly in Spanish. Span. 331-332 and 333-334 may not both be counted toward a degree.

For Undergraduates and Graduates

FRENCH

431. THE MODERN DRAMA. (3:3:0)

Prerequisite: Fr. 331-332, or the equivalent. A study of the drama from 1636 to 1700. Conducted chiefly in French.

432. THE MODERN DRAMA. (3:3:0)

Prerequisite: Fr. 331-332, or the equivalent. A study of the drama of the eighteenth and nineteenth centuries. Conducted chiefly in French.

433. THE LITERATURE OF THE NINETEENTH CENTURY. (3:3:0)

Prerequisite: Fr. 331-332, or the equivalent. A study of the literature of the nineteenth century, exclusive of the drama, from the Romantic to the Naturalistic Movement. Conducted chiefly in French.

434. THE LITERATURE OF THE NINETEENTH CENTURY. (3:3:0)

Prerequisite: Fr. 331-332, or the equivalent. A study of the literature from Naturalism to 1914. Conducted chiefly in French.

435. STUDIES IN FRENCH LANGUAGE AND LITERATURE. (3:3:0)

Prerequisite: Fr. 331-332, or the equivalent. The nature and content of this course will vary to meet the needs of individual students. May be repeated for credit with the consent of the instructor. Conducted chiefly in French.

436. STUDIES IN FRENCH LANGUAGE AND LITERATURE. (3:3:0)

Prerequisite: Fr. 331-332, or the equivalent. The nature and content of this course will vary to meet the needs of individual students. Conducted chiefly in French. May be repeated for credit with the consent of the instructor.

GERMAN

435. STUDIES IN GERMAN LANGUAGE AND LITERATURE. (3:3:0)

Prerequisite: Ger. 331-332, or the equivalent. Studies in a field of language or literature: Classical Period, Romanticism, Contemporary Period. May be repeated for credit with the consent of the instructor. Conducted chiefly in German.

436. STUDIES IN GERMAN LANGUAGE AND LITERATURE. (3:3:0)

Prerequisite: Ger. 331-332, or the equivalent. Studies 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 chiefly in German.

SPANISH

431. NINETEENTH CENTURY PROSE. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. A study of the novel and the essay of the Periods of Romanticism and of Realism. Conducted chiefly in Spanish.

432. NINETEENTH CENTURY PROSE. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. A study of the novel and short story from the Naturalistic Movement to and including the Generation of 1898. Conducted chiefly in Spanish.

433. MODERN DRAMA AND POETRY. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. A study of the romantic and social drama, and of some of the poetry of Garcia Gutierrez, Duque de Rivas, and Zorrilla. Conducted chiefly in Spanish.

434. MODERN DRAMA AND POETRY. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. A study of the Realistic Movement in the drama from Benavente to World War I. Conducted chiefly in Spanish.

436. ADVANCED COMPOSITION AND CONVERSATION. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. A practice course emphasizing the idiomatic, everyday use of the language, and practical phonetics. Review of important grammatical constructions. Recommended for prospective teachers and travelers. Conducted in Spanish.

437. ADVANCED GRAMMAR AND COMPOSITION. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. A study of oral and written Spanish with special attention to accurate and idiomatic expression. Some time is devoted to a study of commercial correspondence. Recommended for prospective teachers. Conducted in Spanish.

4312. THE PROSE OF THE GOLDEN AGE. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. The important prose writers from 1499 to 1650. Conducted chiefly in Spanish.

4313. THE PROSE OF THE GOLDEN AGE. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. Cervantes and his *Don Quixote*. Conducted chiefly in Spanish.

4314. THE DRAMA OF THE GOLDEN AGE. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. Reading of representative plays of the seventeenth century, including works of Lope de Vega, Tirso de Molina, Guillen de Castro, and Mira de Amescua. Conducted chiefly in Spanish.

4315. THE DRAMA OF THE GOLDEN AGE. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. Reading of representative plays of the seventeenth century, including works of Ruiz de Alarcón, Calderón, Rojas Zorrilla, and Moreto. Conducted chiefly in Spanish.

4316. A SURVEY OF SPANISH LITERATURE. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. The history of Spanish literature in the Middle Ages and Renaissance. Recommended for majors in Spanish. Required for graduate majors. Conducted chiefly in Spanish.

4317. A SURVEY OF SPANISH LITERATURE. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. The history of Spanish literature in the Golden Age and the eighteenth century. Recommended for majors in Spanish. Required for graduate majors. Conducted chiefly in Spanish.

4318. READINGS IN CONTEMPORARY SPANISH LITERATURE. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. A survey of the literary scene in Spain from 1898 to the present. Reading of representative dramatists and poets. Conducted chiefly in Spanish.

4319. READINGS IN CONTEMPORARY SPANISH LITERATURE. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. A survey of the literary scene in Spain from 1898 to the present. Reading of repre-

sentative prose writers and poets. Conducted chiefly in Spanish.

4324. READINGS IN SPANISH AMERICAN LITERATURE AND CIVILIZATION. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. The content of this course will vary to meet the needs of the students. Conducted chiefly in Spanish.

4325. READINGS IN SPANISH AMERICAN LITERATURE AND CIVILIZATION. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. The content of this course will vary to meet the needs of the students. Conducted chiefly in Spanish.

4326. SURVEY OF SPANISH AMERICAN LITERATURE. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. The history of Spanish American literature from colonial days to the Modernist Movement. Conducted chiefly in Spanish.

4327. SURVEY OF SPANISH AMERICAN LITERATURE. (3:3:0)

Prerequisite: Span. 331-332, or the equivalent. The history of Spanish American literature from the Modernist Movement to the present. Conducted chiefly in Spanish.

4328-4329. SPANISH CIVILIZATION. (3:3:0 each)

Prerequisite: Span. 331-332, or the equivalent. 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 City.

METHODS

4311. TEACHERS' COURSE IN METHODS OF TEACHING FOREIGN LANGUAGES. (3:3:0)

Prerequisite: Fr., Ger., Latin., or Span. 331-332 or 333-334, and 6 semester hours of education. Instruction in scientific methods of teaching foreign languages with as much practice work as possible. May be counted as education or as foreign language. Required of those preparing to teach a foreign language.

For Graduates

SPANISH

5312. STUDIES IN SPANISH AND SPANISH AMERICAN LITERATURE. (3:3:0)

Prerequisite: Consent of the Head of the Department. 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 the Head of the Department. The nature and content of this course will vary to meet the needs of individual students. Credit given as often as course is repeated.

5335. SPANISH IN 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. 331-332 or the equivalent. Spanish language and culture for elementary school children. Songs, games, dances, and children's literature.

631-632. MASTER'S THESIS (6)

Department of Geology

Professors:

Mr. Wade, Head

Mr. Mattox

Associate Professor:

Mr. Arper

Assistant Professors:

Mr. Dennis

Mr. Shurbet

Instructors:

Mr. Burton

Mr. Jones

Mr. Reeves

Teaching Fellows:

Mr. Cullinan

Mr. Probandt

Mr. Brand

Mr. Harris

Mr. Sturm

Mr. Clarke

Mr. Miller

Mr. Wood

Mr. Harper

Mr. Yeats

Two programs of study are offered to those students who desire to major in geology. For those who want a broad liberal arts background and a firm foundation in geology so that they are qualified to pursue advanced courses in that subject, the Bachelor of Arts program is recommended. Students who wish a more highly specialized program in which geology, related sciences and mathematics are stressed, should choose the curriculum prescribed for the Bachelor of Science Degree.

In addition to the general requirements for the degree of Bachelor of Arts, this department requires that Geology 141-142, 241-242, 331, 332, and 363 and Chemistry 141-142 be included. It is highly desirable that the student choose either German or French to fulfill the foreign language requirement.

The curriculum leading to the Degree of Bachelor of Science, major in geology, is as follows:

Freshman Year

First Semester	Credit
Geol. 141—Gen. Geol.	4
Chem. 141—Gen. Chem.	4
Math. 133—Col. Alg.	3
Eng. 131—Col. Rhet.	3
P.E., Band, or Basic ROTC	1-2

Second Semester	Credit
Geol. 142—Gen. Geol.	4
Chem. 142—Gen. Chem.	4
Math. 131—Trig.	3
Eng. 132—Col. Rhet.	3
P.E., Band, or Basic ROTC	1-2

15-16

Sophomore Year

First Semester	Credit
Geol. 241—Mineral. and Pet.	4
Math. 132—Anal. Geom.	3
Phys. 141—Gen. Physics or Biol. 133—	
Botany	3-4
Eng. 231—Mast. of Lit.	3
Foreign Language	3
P.E., Band, or ROTC	1

17-18

Second Semester	Credit
Geol. 242—Mineral. and Pet.	4
Math. 231—Diff. and Integ. Calc.	3
Phys. 142—Gen. Physics or Biol. 134—	
Zoology	3-4
Eng. 232—Mast. of Lit.	3
Foreign Language	3
P.E., Band, or ROTC	1

17-18

Junior Year

First Semester	Credit
Geol. 331—Geomorph. or Geol. 332—Struc.	
Geol.	3
Geol. 335—Gen. Paleo.	3
Math. 232—Integ. Calc.	3
Foreign Language	3
Govt. 233—Amer. Govt. or Hist. 3321—	
Heritage of Amer.	3
Elective	3

18

Second Semester	Credit
Geol. 332—Struc. Geol. or Geol. 331—	
Geomorph.	2
Geol. 336—Gen. Paleo.	3
Foreign Language	3
Govt. 234—Amer. Govt. or Hist. 3322—	
Heritage of Amer.	3
Electives	6

18

Summer Session — Geology 363—Field Geology	6
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Senior Year

First Semester	Credit
Geol. 4314—Prin. of Stratig.	3
Geol. 431—Opt. Min., and Pet. or Geol.	
436—Micro. Paleo.	3
Hist. 3321—Heritage of Amer., or Govt.	
233—Amer. Govt., Org.	3
Electives	6

15

Second Semester	Credit
Geol. 437—Sedimentation	3
Geol. 432—Opt. Min. and Pet. or Geol.	
435—Stratig. Pale.	3
Hist. 3322—Heritage of Amer. or Govt.	
234—Amer. Govt., Func.	3
Electives	6

15

This curriculum is designed to take care of both those students who prefer to concentrate on the physical aspects of the subject and those who prefer to study the biological aspects. Those in the first category must take Phys. 141-142 and Geol. 431-432. They should minor in either chemistry, physics, or mathematics. Those who desire to follow the second route must take Biol. 131-132, Geol. 435, 436, and minor in biology.

In both curricula minors are required. In the B.A. program the student has a wide choice of subjects but in the B. S. program the minor must be in either a science or mathematics.

Students desiring to minor in geology should consult with the Head of the Department. Courses will be prescribed to fit the needs and interests of each student. A minimum of 20 hours is required.

Grades below C in geology courses will not be accepted in fulfillment of either major or minor requirements in this department.

Graduate work leading to the Degree of Master of Science with a major in geology is offered. The Graduate School Bulletin should be consulted for details.

For Undergraduates

141-142. GENERAL GEOLOGY. (4:3:3 each)

Physical and historical geology. A foundation course for all advanced work in geology. Required of all students majoring in geology.

143. PHYSICAL GEOLOGY. (4:3:2)

An introductory study of geologic features and processes. For non-geology majors.

144. HISTORICAL GEOLOGY. (4:3:2)

Prerequisite: Geol. 143 or 141. An introductory study of geological history. For non-geology majors.

233. GENERAL GEOLOGY FOR ENGINEERS. (3:2:3)

Similar to Geol. 141-142, but a shorter course adapted to the needs of engineering students other than petroleum engineers.

234. MINERALOGY AND PETROGRAPHY FOR PETROLEUM ENGINEERS. (3:2:3)

Prerequisite: Geol. 143-144. Field identification and classification of minerals and rocks.

241-242. MINERALOGY AND PETROGRAPHY. (4:2:6 each)

Prerequisites: Geol. 141-142, Chem. 141-142.

Geometric and chemical crystallography. Classification and methods of identification of minerals; blowpipe analysis; formation, occurrence, properties of mineral. Megascopic identification and classification of rocks.

331. GEOMORPHOLOGY. (3:2:3)

Prerequisites: Geol. 141-142, and approval of instructor. The origin and characteristics of land forms based on a consideration of geologic processes, stages of development, and geological structures.

332. STRUCTURAL GEOLOGY. (3:2:3)

Prerequisites: Geol. 141-142, and approval of instructor. Systematic analysis of the deforming processes and resultant structures in the earth's crust. Graduate credit for minors only.

333. STRUCTURAL GEOLOGY FOR PETROLEUM ENGINEERS. (3:3:0)

Prerequisites: Geol. 143-144.

335-336. GENERAL PALEONTOLOGY. (3:2:3 each)

Prerequisites: Geol. 141-142, and approval of instructor. The detailed structures, basis of classification and geologic history of the various groups of invertebrates. Graduate credit for minors only.

337. GROUND WATER. (3:3:0)

Prerequisites: Geol. 241-242, 331, and approval of instructor. Principles of the occurrence, recharge, movements and discharge of sub-surface water. Graduate credit with approval of Department Head and Graduate Dean.

363. FIELD GEOLOGY. (6)

Prerequisites: Geol. 141-142, 241-242, 331, 332, 335-336, and approval of instructor. Field application of principles of stratigraphy, structural geology, and methods of geological surveying. Required of all majors in the Department of Geology. Graduate credit for minors only. Offered only during summer sessions.

For Undergraduates and Graduates

431-432. OPTICAL MINERALOGY AND

PETROGRAPHY. (3:1:6 each)

Prerequisites: Geol. 241-242, and approval of the instructor. Identification of minerals with the petrographic microscope; description and classification of igneous, metamorphic and sedimentary rocks.

433. PETROLEUM GEOLOGY. (3:3:0)

Prerequisites: Geol. 241-242 or 234, 332 or 333, Physics 141-142 or 235-236, and approval of the instructor. The origin, migration and accumulation of oil and gas; petroliferous provinces.

434. PETROLEUM GEOLOGY. (3:2:3)

Prerequisites: Geol. 433, and approval of the instructor. Subsurface methods; advanced principles.

435. STRATIGRAPHIC PALEONTOLOGY. (3:2:3)

Prerequisites: Geol. 335-336, 4314, and approval of the instructor. Detailed taxonomic and paleoecologic studies of selected elements of faunas from the various geologic systems.

436. MICROPALAEONTOLOGY. (3:1:5)

Prerequisites: Geol. 335-336, and approval of the instructor. Morphology, classification and distribution of foraminifera, ostracods, conodonts, etc., methods of collection and preparation.

437. SEDIMENTATION. (3:3:0)

Prerequisites: Geol. 241-242 or 234, 331, 332, and approval of the instructor. Sedimentary processes and environments.

438. SEDIMENTATION (3:2:3)

Prerequisites: Geol. 437, and approval of the instructor. Advanced principles of sedimentary petrography and petrology; laboratory techniques.

4311. ECONOMIC GEOLOGY. Non-Metallics. (3:2:3)

Prerequisites: Senior or graduate standing

and approval of the instructor. Study of the origin, occurrence and economic aspects of the non-metallic minerals exclusive of oil and gas.

4312. ECONOMIC GEOLOGY. Metallics.
(3:2:3)

Prerequisites: Geol. 431-432 or parallel enrollment, and approval of the instructor. Study of the origin, occurrence and economic aspects of the metallic minerals.

4314. PRINCIPLES OF STRATIGRAPHY.
(3:3:0)

Prerequisites: 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)

Prerequisites: Geol. 4314, senior or graduate standing, and approval of the instructor. Advanced historical geology of North America with emphasis on the application of stratigraphic principles, paleogeography, source areas, sedimentary facies.

4316. AERIAL PHOTO INTERPRETATION.
(3:2:3)

Prerequisites: Geol. 331, 332, and approval of the instructor. Geomorphic and geologic interpretations. Use of stereoscopes and vertical control instruments. Aerial photographs converted to maps.

4317. GEOPHYSICAL METHODS. Gravity and Magnetic. (3:3:0)

Prerequisites: 24 hours of geology, Phys. 141-142 or 235-236, Math. 231-232, and approval of the instructor. The application of geophysical principles to the solution of geological problems.

4318. GEOPHYSICAL METHODS. Seismic and Electrical. (3:3:0)

Prerequisites: 24 hours of geology, Phys. 141-143 or 235-236, Math. 231-232, and approval of the instructor. The application of geophysical principles to the solution of geological problems.

For Graduates

511. GRADUATE SEMINAR. (1)

Required of all graduate students majoring in this department.

531-532. ADVANCED PHYSICAL AND HISTORICAL GEOLOGY (3:3:0 each)

Prerequisite: Graduate standing in geology. A field trip of several days' duration will be taken each semester as part of the course.

533. PETROLOGY OF IGNEOUS ROCKS.
(3:3:0)

Prerequisites: Geol. 431-432, a minimum of

two years of chemistry.

534. PETROLOGY OF METAMORPHIC ROCKS. (3:3:0)

Prerequisites: Geol. 431-432, 533, a minimum of two years of chemistry.

535-536. ADVANCED WORK IN SPECIFIC FIELDS. (3 each)

Prerequisite: Consent of Head of Department. Subject matter considered each semester depends upon the needs and interests of the students.

537. PROBLEMS IN MINERALOGY. (3)

538. GEOLOGY OF THE SOUTHWEST.
(3:3:0)

539. PROBLEMS IN PETROLOGY. (3)

5311. STRATIGRAPHIC MICROPALAEONTOLOGY. (3:3:0)

Prerequisite: Geol. 436. Foraminifera, bryozoa, conodonts, and ostracods; emphasis on morphology and stratigraphic range.

5312. PROBLEMS IN ECONOMIC GEOLOGY. (3)

5313. PROBLEMS IN GEOMORPHOLOGY.
(3)

5324. PROBLEMS IN SEDIMENTATION.
(3)

5326. PROBLEMS IN STRATIGRAPHY. (3)

5327. PROBLEMS IN PALEONTOLOGY. (3)

5328. PROBLEMS IN STRUCTURAL GEOLOGY. (3)

563. ADVANCED FIELD GEOLOGY. (6)

Prerequisite: Elementary field geology. Solution of advanced field problems requiring application of geologic principles, mapping and aerial photo interpretation. Written report required.

631-632. MASTER'S THESIS. (6)

GEOGRAPHY

For Undergraduates

231, 232. PRINCIPLES OF GEOGRAPHY.
(3:3:0 each)

Geographic factors including relief, climate, industries, communications and economic resources.

For Undergraduates and Graduates

331. GENERAL METEOROLOGY. (3:2:3)

Prerequisite: One year of geology or physics or geography. Descriptive and theoretical meteorology and analysis of terrestrial, hydrospheric and atmospheric factors of weather and climate.

332. PRACTICAL METEOROLOGY. (3:2:3)

Prerequisite: Geog. 331. Care and use of meteorological instruments and interpretation of charts and maps. Methods of observing and recording weather.

THE SEISMOLOGICAL OBSERVATORY

The Seismological Observatory of Texas Technological College began operation in 1948. Because of its location geographically, it is particularly strategic for the location of earthquakes in Mexico and Central America. Six seismometers with associated recording equipment constitute the Observatory, which is housed in an especially designed building.

Seismology, in addition to the detection and location of earthquakes, is useful in other ways. It is the only

method of investigating the interior of the earth, and is also useful in geophysical prospecting, in design of buildings, in tracking hurricanes, and in measuring the thickness of polar ice caps.

The Observatory serves as a research center as well as a place for students to gain practical experience in geophysics. The main field of research is problems in propagation of elastic waves, and student assistants are employed in this as well as in the routine operation of the Observatory.

Department of Government

Professors:

Mr. Davis, Head

Mr. Jackson

Associate Professor:

Mr. Oden

Assistant Professors:

Mr. Johnson

Instructors:

Miss Cowart

Mr. Strout

Part-time Instructors:

Mr. Bowman

Mr. Griffith

Mr. Lemon

Mr. Sowder

Teaching Fellows:

Mr. Rooker

Mr. Wells

Mr. Fuller

Mr. Kennedy

Mr. Mack

Mr. Myres

Mr. Werlin

Mr. Ellis

Mr. Jackson

Mr. Smith

Mr. Snow

All students who graduate from state-supported colleges in Texas must have completed 6 semester hours of government covering the studies of United States and Texas Constitutions. In these courses, the Department of Government endeavors to prepare students for a basic understanding of governmental processes that are involved in responsible citizenship, intelligent voting, and successful leadership in public affairs.

For those who desire a more intensive study, a major or minor containing a well-rounded program is offered in government.

The major is based on the principles of a liberal education, with attention to the social sciences, and emphasis on the theory and practice of governments. 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: They are:

American Government and Politics (National, State, and Local)

Comparative Government (British, Russian, and Latin American)

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)

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 levels.
2. Preparation for entry into law school.
3. Training for the foreign service.
4. The teaching of government or social science, on the secondary or college levels.
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 Department of Government serves in an advisory capacity for pre-law students. Each student having such interest is guided carefully toward fulfilling the entrance re-

quirements for law school and is given the best possible preparatory background for his future work. (See Pages 16-17.)

Students interested in preparing for government service may take advanced courses in all levels of American government with emphasis upon the field of their special interest.

The Department of Government also cooperates in the Latin American Area Studies program. (See Page 26.)

As a participant in the teacher education program of the College, the Department of Government provides a program whereby a student may qualify for certification to teach in the secondary schools under either the Bachelor of Arts or Bachelor of Science in Education Degrees with either a teaching major or minor in government. For details, contact the Head of the Department of Government.

In the Bachelor of Science in Education Degrees, Secondary Program and in the Bachelor of Arts Degree, a social science teaching option is available; this will provide certification for teaching in three fields: government (civics), history, and social science. To qualify in this broad area in the Bachelor of Science in Education, the student will take 18 hours in government, 18 hours in history, 6 hours in economics, and 6 other hours in social science subjects. A student desiring to obtain this certification in the Bachelor of Arts Degree program should consult the Head of the Department of Government or the Head of the Department of History.

The Department of Government offers a special major on the graduate level for students interested in city manager training or work in municipal government. The course work is of an inter-departmental 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.

Other graduate offerings of the

Department of Government are covered in the Graduate Bulletin of Texas Technological College.

Students interested in investigating a major or minor in government are invited to call by 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.

For Undergraduates

233. AMERICAN GOVERNMENT, ORGANIZATION. (3:3:0)

A study of the constitutions and organizations of the governments of the United States, the states in general, and Texas in particular.

234. AMERICAN GOVERNMENT, FUNCTIONS. (3:3:0)

A study of the functions and services of the government of the United States, the states in general, and Texas in particular. This course will follow Govt. 233.

For Undergraduates and Graduates

331. LOCAL GOVERNMENT. (3:3:0)

A study of the organization of city and county government in the United States, the various forms of local government, interdepartmental relations, city-state relations, city-nation relations, and an introduction to the administrative problems of local units of government.

332. EUROPEAN POLITICAL IDEAS. (3:3:0)

A study of the political ideas expressed by the great thinkers from ancient times to the present with emphasis upon reading from the classics.

333. AMERICAN POLITICAL IDEAS. (3:3:0)

The lives and ideas of leading political thinkers of the United States from the Colonial period to the present.

334. POLITICAL PARTIES. (3:3:0)

An analysis of political parties showing party history, functions, organization, finance, nominations, campaign methods, and elections.

335. INTERNATIONAL POLITICS. (3:3:0)

Problems and issues which arise in the family of nations; organizations and techniques to cope with these problems; the principles of international conduct.

336. UNITED STATES FOREIGN POLICY. (3:3:0)

Emphasis is placed upon the process of making foreign policy, the constitutional framework for the conduct and control of American foreign policy, and study of the problems and issues of the contemporary period with sufficient historical perspective to give meaning to its development.

337. PUBLIC ADMINISTRATION, ORGANIZATION. (3:3:0)

Principles of administrative organization; distribution of administrative functions together with the structure of all units of government charged with the carrying out of public policy.

338. PERSONNEL AND FISCAL ADMINISTRATION. (3:3:0)

The chief problems of national, state, and local units of government, including budgeting, accounting, reporting, purchase and sup-

ply, personnel, promotion, demotion, removal, and retirement.

339. LEGISLATION. (3:3:0)

An analysis of the structure, organization, and procedure of American legislative bodies, showing the problems and principles of law-making.

3311. STATE GOVERNMENT. (3:3:0)

An examination of the structure, techniques, problems, and functions of state governments, with special emphasis on Texas.

3312. BRITISH GOVERNMENT. (3:3:0)

Study of the principles, policies, and practices of the government of Great Britain with emphasis on comparisons with France and the United States, and the impact of Britain on the development of democracy.

3313. RUSSIAN GOVERNMENT. (3:3:0)

Study of the development, structure, and operation of the government of the USSR with emphasis on the impact of the Soviet Union upon the rest of continental Europe, and the techniques of dictatorship.

3315. GOVERNMENT AND BUSINESS. (3:3:0)

The role of government in the field of business and in the American economy. A study of public policy on aids to business, on regulation of business and public utilities, on government participation in business, and on government responsibility for maintaining full employment and a healthy economy. Also a study of the voice of business in government and the political activities of business.

3316. GOVERNMENT AND LABOR. (3:3:0)

The role of government in labor problems. Legislative, administrative and judicial policies relating to organization of workers, industrial disputes, wages and hours, child labor, workmen's compensation, labor as monopoly, social security, etc. Also a study of labor's voice in government and the political activities of labor.

3317. MEXICAN AND CARIBBEAN GOVERNMENTS. (3:3:0)

A study of the constitutional development, governmental organization, political trends and forces, with special emphasis on recent political problems.

3318. SOUTH AMERICAN GOVERNMENTS. (3:3:0)

A study of the constitutional development, governmental organization, political trends and forces, with emphasis on recent political problems of democracies and dictatorships in selected South American states.

3319. JURISPRUDENCE. (3:3:0)

The origins and development of modern legal institutions, with comparisons of Anglo-American and civil legal systems.

431. AMERICAN CONSTITUTIONAL LAW. POWERS. (3:3:0)

Interpretation of the constitution of the United States based primarily upon Supreme Court decisions. Emphasis on the powers of government.

432. AMERICAN CONSTITUTIONAL LAW, LIMITATIONS. (3:3:0)

Interpretation of the constitution of the

United States based primarily upon Supreme Court decisions. Emphasis on limitations on both the state and national governments.

433. MODERN POLITICAL IDEAS. (3:3:0)

An analytical study of the ideas of modern political writers, emphasizing a comparison and contrast of twentieth century philosophies of democracy, fascism, and communism.

435. INTERNATIONAL ORGANIZATION. (3:3:0)

The perspective of this course is a view of the United Nations with consideration given to the historical aspects and processes of international organization, and the practice of governments in the United Nations.

436. INTERNATIONAL LAW. (3:3:0)

The historical background and the nature and scope of international law; the organization of the community of nations; the general rights and duties of states; and the problems of applying law to international relations. The writings of outstanding publicists, as well as legal cases, are critically evaluated.

437. POLITICAL GEOGRAPHY. (3:3:0)

Study of the principal political areas of the world from the point of view of politico-geographic factors of power including size, location, population, political and social organization, natural and industrial resources and national morale.

438. LOCAL ADMINISTRATION. (3:3:0)

A study of governmental functions performed by local units of government such as planning, zoning, water supply, recreation, police and fire protection, public works, and municipal finance.

439. ADMINISTRATIVE LAW. (3:3:0)

Organization and procedure of federal and state administrative agencies; distinction between legislative, executive and judicial powers; delegation of powers; the nature of power vested in administrative agencies; requirements of due process; judicial control over administrative action.

4311. FAR EASTERN GOVERNMENTS. (3:3:0)

A study of the political institutions of Japan, China, and India, with emphasis on the Modern and Contemporary Period.

For Graduates

531. READING AND RESEARCH. (3:3:0)

A directed course of intensive readings and research in particular fields. May be used either as an individual study course or as a seminar. May be repeated in different fields of emphasis.

5335. POLITICAL IDEOLOGIES AND INSTITUTIONS. (3)

This course is designed to afford mature students an acquaintanceship with the broad fields, the literature, and ideological concepts of political science, and is particularly designed to be of value to those in public education or government service.

535. SEMINAR IN PUBLIC LAW. (3:3:0)

536. SEMINAR IN INTERNATIONAL RELATIONS. (3:3:0)

631-632. MASTER'S THESIS. (6)

Department of Health, Physical Education and Recreation for Men

Professors:

Mr. Kireilis, Head

Associate Professors:

Mr. Philbrick

Assistant Professor:

Mr. Cobb

Instructors:

Mr. Buchanan

Mr. McNally

Mr. Jennings

Mr. Robison

Mr. Feathers

Mr. Sparks

The Department offers the following degrees: Bachelor of Science in Education with a major in physical education, Bachelor of Arts with a major in physical education, and a Bachelor of Arts with a major in recreation. Students desiring to become coaches or physical educators should seek the physical education major and students desiring to work in city recreation program, camps, and related fields should seek a recreation major. Further information in regard to these degrees should be secured from the Department Head.

During the first year, students majoring or minoring in the Department must file a physical examination report in the Department Head's office. The form for this examination should be secured from this department.

INTRAMURAL ATHLETICS FOR MEN

The primary aim of intramural athletics is to give real meaning to the saying "more athletics in education and more education in athletics". It is the purpose of the department of intramural athletics to provide each male student in the College not of varsity caliber with the opportunity to participate in informal, carefully organized, and regularly scheduled athletic activities. Our slogan is "Athletics For All." Participation is entirely voluntary.

Competition is conducted in individual, dual, and team sports to enable the student to participate vol-

untarily and wholesomely on a co-operative-competitive basis in a wide variety of activities. Such competition is scheduled during non-class hours and is designed to permit the student to choose the sport best suited to his interests and abilities.

The sports now offered are badminton, basketball, bowling, fencing, golf, handball, table tennis, softball, swimming, tennis, touch football, track and field, volleyball, and basketball free throws.

Required Service Program

It is the purpose of the Physical Education Department to give each student the opportunity to develop physically, socially, and mentally, by providing a wide variety of physical education activities in which students may participate. All male students who are required to complete four semesters of work in physical education activities for graduation will complete work in Physical Education 010, 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 Physical Education 010 during their first semester. After a student has satisfactorily completed work in Physical Education 010, a three-semester program of physical education activities will be recommended to the student.

010. INTRODUCTION TO PHYSICAL EDUCATION ACTIVITIES. (1:1:1)

To ascertain the student's physical efficiency and health status through standardized physical efficiency tests and medical reports which will enable the staff to prescribe a

sports program that will meet each student's physical needs; to introduce the student to a variety of sports offered in the Department through such media as movies, class observation, expert demonstrations, and lectures by the regular staff.

The remaining three semesters of physical education activities will be recommended to the student as to his needs from the following list of courses:

*011. ADAPTED SPORTS.	
*012. BEGINNING SWIMMING.	
*013. ADVANCED SWIMMING.	
*014. LIFE SAVING.	
*015. SPRINGBOARD DIVING (1- and 3-meter).	
016. ELEMENTARY TUMBLING.	
017. GOLF.	
018. ARCHERY.	
019. TRACK AND FIELD.	
**0111. BOWLING.	
0112. WEIGHT LIFTING.	
**0113. ADVANCED BOWLING.	
0114. FLY AND BAIT CASTING.	
0121. HANDBALL.	
0122. BADMINTON.	
0123. WRESTLING.	
0124. FENCING (Foil).	
0125. SOCIAL DANCING.	
0126. FENCING (Saber-Epee).	
0127. TENNIS.	
0128. ADVANCED TENNIS.	
0141. TOUCH FOOTBALL.	
0142. BASKETBALL.	
0143. SOCCER.	
0144. SPEEDBALL.	
0145. SOFTBALL.	
0146. FOLK DANCE.	
0147. VOLLEYBALL.	
*0148. WATER POLO.	

Students who pass any course may not repeat the same course for additional credit. These are all laboratory courses involving individual instruction.

BACHELOR OF SCIENCE IN EDUCATION, HEALTH AND PHYSICAL EDUCATION MAJOR FOR MEN

Students who desire to coach and/or to teach physical education on the secondary level should follow the 24-semester-hour major program listed below.

HEALTH AND PHYSICAL EDUCATION MAJOR SECONDARY LEVEL CERTIFICATION PROGRAM

Freshman Year

First Semester	Credit
Biol. 133, Botany, or	3
Chem. 141—Gen. Chem.	4

*Course Fee, \$5.

**Bowling alley charge, \$10.

Eng. 131—Col. Rhet.	3
Speech, 131—Fund. of Spch.	3
Educ. 130—Found. of Educ.	3
*P.E. 133—Pers. and Com. Health	3
	15-16

Second Semester	Credit
Biol. 134, Zoology, or	3
Chem. 142—Gen. Chem.	4
Eng. 132—Col. Rhet.	3
Spch. 233—Voice and Dict., or Spch. 235—	3
Disc. and Debate	3
P.E. 230—H. Educ. in Elem. and Sec. Sch.	3
Soc. 230—Intro. of Soc.	3
	15-16

Sophomore Year

First Semester	Credit
Zool. 231, Comp. Vert. Anat., or	3
Zool. 235—Anat., Phys., and Hyg.	3
Govt. 233—Amer. Govt., Org.	3
Eng. 231—Mast. of Lit.	3
Hist. 231—Hist. U.S. to 1865	3
**P.E. 221—Theory and Prac. Ind. Spts.	2
Minor	3
	17

Second Semester	Credit
Zool. 232, Comp. Vert. Anat., or	3
Zool. 236—Anat., Phys., and Hyg.	3
Govt. 234—Amer. Govt., Func.	3
Eng. 232—Mast. of Lit.	3
Hist. 232—Hist. U.S. Since 1865	3
**P.E. 222—Theory and Prac. Team Spts.	2
Educ. 232—Educ. Psy.	3
	17

Junior Year

First Semester	Credit
Educ. 330—Prin. of Secon. Educ.	3
Psy. 335—Adol. Psy.	3
**P.E. 321—Theory and Fund. of Gymnas. and Wrest.	2
P.E. 332—Care and Prev. of Ath. Inj.	3
P.E. 323—Spts. Offic.	2
Minor	3
	16

Second Semester	Credit
Educ. 334—Cur. Dev. in Secon. Educ.	3
Educ. 336—Secon. Educ. Meth.	3
**P.E. 322—Elem. Aquat.	2
P.E. 3311—Meth. Tch. P.E. in H.S.	3
Electives	3
Minor	3
	17

Senior Year

First Semester	Credit
Educ. 432—Stud. Obs. and Tch. in Secon.	3
Sch.	3
P.E. 422—Theory and Fund. of Base. and Bask.	2
P.E. 437—Meas. in P.E.	3
Minor	6
Electives	3
	17

Second Semester		Credit
Educ. 434—Adv. Stud. Obs. and Tch.,	3	
Secun. Sch.	3	
P.E. 423—Theory and Fund. of Foot. and	2	
Track	2	
P.E. 436—Phys. Exam. and Cor. P.E.	3	
P.E. 431—Kinesiology	3	
Minor	3	
Electives	4	
		18

The physical education major can secure a secondary certificate by completing work in the following programs:

Physical Education: 230, 323, 332, 3311, 422, 423, 431, 436 & 437. Required P.E.: 221, 222, 321 & 322.

Education: 130, 232, 330, 334, 336, 432, 434 & Psy. 335.

General Education: P.E. 133.

The Physical Education major can also secure an all level certificate by completing work in the following programs:

Physical Education: 230, 233, 323, 332, 3311, 422, 423, 431, 436, 437, 438 4322 & 4324.

Required P.E.: 221, 222, 321 & 322.

Education: 130, 232, 333, 334, 335, 336, 431 & 432.

General Education: P.E. 133.

Students seeking a B.A. Degree with a major in physical education will meet all the general requirements for the B.A. Degree. Students following this program may secure physical education secondary or all-level certificate.

Students must complete work in an acceptable teaching minor. Some of the recommended minors are listed below, but specific courses must be approved by the head of the department concerned.

	Sem. Hrs.
Foreign Language (including two 400 level courses)	18
English	21
History	21
Government	18
Mathematics	21
Biology	18-21

No grade less than C will be accepted in meeting the physical education major requirements.

Students seeking a minor in the department will complete work in one of the following programs.

Physical Education: 133, 230, 323, 332, 3311, 422, 423 and 3 sem. hrs. P.E.

The required P.E. courses are: 221, 222, 321 & 322.

Health Education: P.E. 133, 230, 436, 4326, 4321 & 437.

Recreation: 331, 332, 4324, 439, 4323 & 3 hours elective. The required physical education courses are: P.E. 221, 222, 321 & 322.

Students who are interested in recreation and follow the recreation minor program will not receive a teaching certificate but will be capable of working in various types of recreation programs offered by numerous institutions.

Students majoring or minoring in physical education, or minoring in health education, must complete work in the following science courses: Biology 131-134; Zoology 231-232; or Chemistry 141-142; Zoology 235-236.

The general education courses for students seeking the physical education all-level certificate or the physical education secondary-level certificate are: Natural Sciences—Chemistry 141-142; Zoology 235-236 or Biology 133-134; Zoology 231-232; Social Sciences—Government 233-234; History 231-232; Sociology 230; Humanities—English 131-132, 231-232; Speech 131; 233 or 235; Other general courses: Physical Education 133.

BACHELOR OF ARTS MAJOR IN RECREATION

The Department of Health, Physical Education, and Recreation for Men offers a B.A. Degree with a major in recreation. The general requirements for the Bachelor of Arts Degree will be met. Students who follow the recreation major program will be capable of working in various types of recreation programs that are offered by numerous institutions.

The core program in this field consists of the following courses: Physical Education 133, 4326, 439, 331; Speech 233 or 235; Education 330; Psychology 130 and 332.

The areas of emphasis available at the present time are sports, arts and crafts, music, dramatics, and park management.

A recreation major must complete work in the sports area. In addition, he must select one area from the following: arts and crafts, music, dramatics, or park management. Also, introductory courses in areas not mentioned in will be completed. A student desiring further information concerning the recreation major should consult the Head of the Physical Education Department for Men.

The courses to be taken in the sports area are: Physical Education 131, 221, 222, 321, 322, 323, 422 and 4324 or 4323 with field experience.

The courses to be taken in the arts and crafts area are: Applied Arts 131, 133, 232 and 537. Also, 9 semester hours of the following: Applied Arts 233, 331, 332, 335, 337-338, 3311, 425, 427, 434, 435 or 439. Allied Arts 238-239.

The courses to be taken in the music area are: Music 131, 132; Applied Music 1113, 1114, 1123, 1124; Music Education 327. Also 6 hours electives.

The courses to be taken in the drama area are: Speech 319 (may be taken three times), 231, 232, 333, 334, 431 and 4311.

The courses to be taken in the park management area are: Horticulture 131, 232, 233, 3311, 338, 422, and 423.

The Graduate Bulletin contains information for those students who desire to do major or minor work on a master level.

For Undergraduates

131. INTRODUCTION TO PHYSICAL EDUCATION. (3:3:0)

Brief introduction to the field of physical education, its philosophy, aims, objectives, principles, and potential values.

133. PERSONAL AND COMMUNITY HEALTH. (3:3:0)

Fundamentals of health, dealing with 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)

Course is designed to prepare students as physical educators in junior and senior high schools, colleges, and as community recreation leaders. It covers the rules and fundamentals of tennis, handball, and badminton.

222. THEORY AND PRACTICE OF TEAM SPORTS. (2:2:2)

Continuation of P.E. 221. Covers the rules and fundamentals of volleyball, softball, speedball, and soccer.

230. HEALTH EDUCATION 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. PHYSICAL EDUCATION FOR THE ELEMENTARY SCHOOL. (3:3:0)

A method and content course dealing with the theory and practice of physical education.

310. HEALTH EDUCATION WORKSHOP. ONE WEEK. (1:10:15)

Study of problems in health education and methods of implementation and coordination of local and state resources.

321. THEORY AND FUNDAMENTALS OF GYMNASTICS AND WRESTLING. (2:2:2)

Practice in fundamental gymnastic and wrestling skills and a study of theory, rules, and history of gymnastics and wrestling.

322. ELEMENTARY AQUATICS. (2:2:2)

Practice of swimming fundamentals from beginner's swimming through lifesaving; also includes 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. Consideration of philosophy and method; practice in planning and leading recreation.

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.

332. FIRST AID; CARE AND PREVENTION OF ATHLETIC INJURIES. (3:3:2)

American Red Cross First Aid Course leading to a standard first aid certificate, including athletic training and an analysis of common athletic injuries, their care, and prevention.

422. THEORY AND FUNDAMENTALS OF BASEBALL AND BASKETBALL. (2:2:2)

Practice in offensive and defensive fundamentals of baseball and basketball and a study of 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 of the semester to basketball.

423. THEORY AND FUNDAMENTALS OF FOOTBALL AND TRACK. (2:2:2)

Practice in individual offensive and defensive fundamentals in football and individual skills in track and field events. A study of offensive and defensive systems and strategies, scouting method, public relations and professional ethics in football. Approximately three-fifths of the semester will be devoted to football and two-fifths of the semester to track.

For Undergraduates and Graduates

431. KINESIOLOGY. (3:1:2)

A study of the principles of human motion. Anatomical and mechanical analysis of everyday and physical education activities emphasized for the purpose of promoting normal physical development and improvement of performance.

432. PHYSIOLOGY OF EXERCISE. (3:3:0)

The effect of muscular activity on the processes of the body.

4321. METHODS AND TECHNIQUES OF DRIVER INSTRUCTION. (3:3:2)

Preparation of high school teachers in driver education, which includes classroom and behind-the-wheel techniques. All prospective teachers will have the opportunity to teach beginners. Special fee, \$20.

4322. ORGANIZATION AND ADMINISTRATION OF INTERSCHOLASTIC AND INTERCOLLEGIATE ATHLETIC PROGRAMS. (3:3:0)

A study of methods in organizing and administering the interscholastic and intercollegiate athletic programs. Study is given to the following items: staff, program, budget, health and safety, facilities, publicity, history, duties of an athletic director, and national, state, and local controls.

4323. ORGANIZATION AND ADMINISTRATION OF CAMPS. (3:3:0)

A study of organization and administration of different types of camps including objectives, organization, routine administration, and evaluation.

4324. ORGANIZATION AND ADMINISTRATION OF INTRAMURAL SPORTS (3:3:0)

Administrative procedures connected with organization, records, equipment, program, and staff duties. Includes sports officiating, which covers ethics, rules, mechanics, and practice.

4326. SAFETY EDUCATION. (3:3:2)

A study of prevention of accidents in home, industry, and recreation. This includes American Red Cross standard, advanced, instructor, and safety courses.

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 tests used in physical education and methods of administering tests and using data.

438. CURRICULUM DEVELOPMENT IN PHYSICAL EDUCATION. (3:3:0)

Principles of curriculum planning in physical education.

439. ORGANIZATION AND ADMINISTRATION OF RECREATIONAL PROGRAMS. (3:3:0)

Study of community recreation, its significance, leadership, facilities, and organization of programs with special consideration of the contribution of physical education.

For Graduates

531. ADMINISTRATION OF PHYSICAL EDUCATION. (3:3:0)

A study of principles, problems, and procedures for administering physical education programs. The course is especially designed for school administrators, athletic directors, physical education directors, and city directors.

532. SUPERVISION OF PHYSICAL EDUCATION. (3:3:0)

A study of principles, problems, relationships, and procedures in the supervision of elementary and high school physical education programs.

533. FACILITIES FOR PHYSICAL EDUCATION. (3:3:0)

A study of principles, terminology, and standards for planning, construction, use, and maintenance of facilities.

534. ADMINISTRATION OF THE SCHOOL HEALTH PROGRAM. (3:3:0)

A course for teachers, coaches, and school administrators who desire an understanding of a well-balanced health program.

631-632. MASTER'S THESIS. (6)

Department of Health, Physical Education and Recreation for Women

Professor:

Miss Dabney, Head

Associate Professor:

Miss Rainey

Instructors:

Miss Davis

Miss Rollo

Assistant Professor:

Miss Hoyle

Miss Perry

The Department of Health, Physical Education and Recreation for Women offers a service program and a professional program.

Service Program

With a few exceptions (band and age limit) physical education activity is required of all freshmen and sophomore women and four semesters of physical education constitute part of the requirements for all degrees.

The main purpose of the service program is to provide each student with opportunities to acquire the knowledge, skills, habits, and attitudes pertaining to health and physical activity which will contribute to more satisfying and effective living during college days and post-college life. Instruction is provided in a wide variety of activities including sports, dance and swimming.

The first semester each freshman woman is required to take a course in body conditioning. This course is designed to give the student knowledge of and practice in the skills of body control and effective movement. Emphasis is placed on posture, conditioning exercises and fundamental rhythms.

The remaining three semesters she may select any activity offered in the service program.

Service Courses (1:0:2)

111. BODY CONDITIONING.

**112. BEGINNING BOWLING.

*Course fee, \$5.

**Bowling alley charge, \$10.

- 210. BEGINNING TAP DANCE.
- 212. BEGINNING TENNIS.
- 213. ADVANCED TENNIS.
- 214. ADVANCED TAP DANCE.
- 215. BASKETBALL.
- 216. SOCCER AND SPEEDBALL.
- 217. BEGINNING FOLK AND SQUARE DANCE.
- 218. VOLLEYBALL.
- 219. STUNTS AND TUMBLING.
- 2111. BEGINNING GOLF.
- *2112. BEGINNING SWIMMING.
- 2113. RESTRICTIVE PHYSICAL EDUCATION. MAY BE SUBSTITUTED FOR REQUIRED SERVICE COURSES ON THE ADVICE OF A PHYSICIAN AND THE HEAD OF THE DEPARTMENT.
- 2114. FIELD HOCKEY.
- 2115. BEGINNING BADMINTON.
- 2116. SOCIAL DANCE.
- 2117. BEGINNING ARCHERY.
- 2118. BEGINNING MODERN DANCE.
- 2119. SOFTBALL.
- 2121. ADVANCED GOLF.
- *2122. SYNCHRONIZED SWIMMING.
- *2123. ADVANCED BOWLING.
- *2124. ADVANCED SWIMMING.
- 2125. ADVANCED BADMINTON.
- 2127. ADVANCED ARCHERY.
- 2128. ADVANCED MODERN DANCE.
- 2129. ADVANCED FOLK AND SQUARE DANCE.

INTRAMURAL PROGRAM

All women students are eligible to participate in the Intramural Program. This is a voluntary program under the sponsorship, supervision and direction of the Department. This program offers each student an opportunity to enjoy competition and wholesome recreation in a wide variety of activities. The following sports are included in the present Intramural Program: volleyball, tennis, golf, archery, badminton, bowling, basketball, softball and swimming.

PROFESSIONAL PROGRAMS

The Department offers the following degrees: Bachelor of Science in Education with a major in physical education; Bachelor of Arts with a major in physical education; and a Bachelor of Arts with a major in recreation.

Each student who plans to major or minor in physical education (or recreation) must bring each year from her family physician a complete physical examination report. The form for this examination should be secured from the Physical Education Department.

BACHELOR OF SCIENCE IN EDUCATION

MAJOR IN PHYSICAL EDUCATION

The student who desires to teach physical education should select this degree. This curriculum is designed specifically to meet the legal requirements for certification in the State of Texas. The satisfactory completion of this degree qualifies the student to teach physical education on the secondary level or to qualify for an all level-certificate. The student should follow the curriculum outlined below:

Secondary Program*

Freshman Year

First Semester	Credit
Educ. 130—Found. of Educ.	3
Eng. 131—Col. Rhet.	3
Spch. 131—Func. of Spch.	3
Chem. 141—Gen. Chem.	4
P.E. 123—Indiv. Sports	2
**P.E. 111—Body Cond.	1
	16

Second Semester	Credit
Eng. 132—Col. Rhet.	3
Spch. 233—Voice and Diction	3
Chem. 142—Gen. Chem.	4
P.E. 132—Pers. and Com. Health	3
P.E. 131—Intro. to P.E.	3
**P.E. 124—Indiv. Sports	2
	18

*Students wishing to qualify to teach in both the elementary and secondary schools must, in addition to the above courses, take P.E. 233 and Psychology 331; and substitute Educ. 431 for Educ. 434.

**Satisfies one semester of the College physical education requirement.

***Available minors are biology, English, history, social science, government, mathematics and speech.

Sophomore Year

First Semester	Credit
Educ. 232—Educ. Psy.	3
Eng. 231—Mast. of Lit.	3
Zool. 235—Anat., Phys., & Hyg.	3
Govt. 233—Amer. Govt., Org.	3
Hist. 231—Hist. U.S. to 1865	3
**P.E. 125—Team Sports	2
	17

Second Semester	Credit
Eng. 232—Mast. of Lit.	3
Zool. 236—Anat., Phys., & Hyg.	3
Govt. 234—Amer. Govt., Func.	3
History 232—Hist. U.S. Since 1865.	3
P.E. 230—Health Educ.	3
**P.E. 126—Team Sports	2
	17

Junior Year

First Semester	Credit
Educ. 330—Prin. of Secon. Educ.	3
Psy. 335—Adol. Psy.	3
Soc. 230—Intro. to Sociol.	3
P.E. 328—Tech. of Sports	2
Elective	3
***Minor	3
	17

Second Semester	Credit
Educ. 334—Curric. Dev. Secon. Educ.	3
Educ. 336—Secon. Educ. Meth.	3
P.E. 329—Tech. of Sports	2
P.E. 3313—Theory & Prac. of Dance	3
Elective	3
***Minor	3
	17

Senior Year

First Semester	Credit
Educ. 432—Stud. Obs. and Tch.	3
P.E. 4311—P.E. Jr., Sr. H.S.	3
P.E. 436—Phys. Exam. and Correc. P.E.	3
Elective	3
***Minor	3
	15

Second Semester	Credit
Educ. 434—Adv. Stud. Obs. and Tch.	3
P.E. 431—Kinesiology	3
P.E. 437—Meas. in P.E.	3
Elective	3
***Minor	3
	15

BACHELOR OF ARTS DEGREE MAJOR IN RECREATION

The student who is interested in positions of leadership in recreation, rather than in teaching, should select this degree. This degree offers a broad liberal background. The completion of the major in recreation prepares the student for positions

in city recreation programs, camps, and allied areas.

The general requirements for the Bachelor of Arts Degree will be met. A recreation major must complete work in two areas — sports and dance and a choice of one of the following: arts and crafts, music, dramatics or park management.

Core Program: P.E. 133, 4326, 439, 331, Speech 233 or 235; Education 330; Psychology 130, 332.

Sports and Dance: P.E. 131, 328-329, or 4323 with field experiences. Courses in sports, dance and swimming will be prescribed according to the skills of the student.

Arts and crafts: Applied Arts 131, 133, 232, 537. 9 semester hours of the following: Applied Arts 233, 331, 332, 335, 337, 338, 3311, 425, 427 434, 435 or 439. Allied Arts 238, 239. Music: Music 131-132, Applied Music 1113-1114, 1123-1124, Music Education 327. 6 hours electives.

Dramatics: Speech 319 (may be taken three times), 231, 232, 333, 334, 431, 4311.

Park Management: Horticulture 131, 232, 233, 3311, 338, 422, 423.

BACHELOR OF ARTS DEGREE MAJOR IN PHYSICAL EDUCATION

The general requirements for the Bachelor of Arts Degree will be met. The courses in physical education required for the major in the Bachelor of Arts Degree are the same as those listed for the major in the Bachelor of Science in Education. (Page 36.) If the student desires to be certified for teaching in the State of Texas, she must complete 24 hours of education as prescribed by the Department of Education.

Master's Degree

The Department offers a major and minor for the Master's Degree. For details, see Bulletin of The Graduate School.

Minors

The Department offers minors in three fields: health, physical educa-

tion, and recreation. A student minoring in any of these fields must take Chemistry 141-142 and Zoology 235-236.

Health Education: P.E. 133, 230, 436, 4326, 437, 4321.

Physical Education: P. E. 131, 230, 4311, or 233 and 3 hours' advanced electives in physical education. In addition, activity courses in sports, dance and swimming will be prescribed, depending on the skill of the student.

Recreation: P. E. 133, 331 and 439 or 4323 plus field experiences. In addition, activity courses in sports, dance and swimming will be prescribed depending on the skills of the student.

For Undergraduates

123. INDIVIDUAL SPORTS. (2:0:4)

Skills, tactics, and rules in the individual sports of tennis and badminton.

124. INDIVIDUAL SPORTS. (2:0:4)

Skills, tactics, and rules in the individual sports of archery and golf.

125. TEAM SPORTS. (2:0:4)

Skills, tactics, and rules in the team sports of hockey, speedball and soccer.

126. TEAM SPORTS. (2:0:4)

Skills, tactics, and rules in the team sports of volleyball, basketball, and softball.

131. INTRODUCTION TO PHYSICAL EDUCATION. (3:3:0)

Brief introduction to the field of physical education, its philosophy, aims, objectives, principles, and potential values.

133. PERSONAL AND COMMUNITY

HEALTH. (3:3:0)

Fundamentals of health, dealing with personal hygiene; community health problems; causes and prevention of disease in the family as related to individual and community health.

230. HEALTH EDUCATION 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. PHYSICAL EDUCATION FOR 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. Consideration of philosophy and method; practice in planning and leading recreation.

3313. THEORY AND PRACTICE OF THE DANCE. (3:3:0)

Prerequisite: P.E. 210, 217, 2118. Rhythm analysis, practice, and procedure in dance.

For Undergraduates and Graduates

431. KINESIOLOGY. (3:3:0)

A study of the principles of human motion. Anatomical and mechanical analysis of everyday and physical education activities emphasized for the purpose of promoting normal

physical development and improvement of performance.

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.

432. PHYSIOLOGY OF EXERCISE. (3:3:0)

The effect of muscular activity on the processes of the body.

4321. METHODS AND TECHNIQUES OF DRIVER INSTRUCTION. (3:3:2)

Preparation of high school teachers in driver education, which includes 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)

A study of organization and administration of different types of camps including objectives, organization, routine administration, and evaluation.

4326. SAFETY EDUCATION. (3:3:2)

A study of prevention of accidents in home, industry, and recreation. This includes Red Cross standards, advanced, instructors, and safety courses.

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)

Principles of curriculum planning in physical education.

439. ORGANIZATION AND ADMINISTRATION OF RECREATION PROGRAMS. (3:3:0)

Study of community recreation, its significance, leadership, facilities, and organization of programs with special consideration of the contribution of physical education.

For Graduates

531. ADMINISTRATION OF PHYSICAL EDUCATION. (3:3:0)

A study of principles, problems, and procedures for administering physical education programs. The course is especially designed for school administrators, athletic directors, physical education directors, and city directors.

532. SUPERVISION OF PHYSICAL EDUCATION. (3:3:0)

A study of principles, problems, relationships, and procedures in the supervision of elementary and high school physical education programs.

533. FACILITIES FOR PHYSICAL EDUCATION. (3:3:0)

A study of principles, terminology, and standards for planning, construction, use, and maintenance of facilities.

534. ADMINISTRATION OF THE SCHOOL HEALTH PROGRAM. (3:3:0)

A course for teachers, coaches, and school administrators who desire an understanding of a well-balanced health program.

Department of History, Anthropology, and Sociology*

Professors:

Mr. Pearce, Head
Mr. Eaves
Mr. Kinchen
Mr. McKay

Mr. Connor
Mr. Holden
Mr. Koos
Mr. Wallace

Associate Professors:

Mr. Graves
Mr. Steglich

Mr. Manning
Mr. Vigness

Assistant Professors:

Mr. Blaisdell
Mr. Dillon

Mr. DeLaRue
Mr. Dunn
(part time)

Mr. Jones
Mr. Rivera

Mr. Kelley
Mrs. Vigness
(part time)

Instructors:

Mrs. Bowers

Mr. Hughes

Teaching Fellows:

Mr. Brunson
Mr. Gordon

Mr. Clardy
Mr. McGraw

The curricula offered in the three disciplines of this department are based on a belief that every individual is entitled to a liberal education, whose main purpose is to broaden and deepen his understanding and enjoyment of the world around him. It is felt that in the process of acquiring a liberal education a person may become a more effective member of the community, trained in the technique of living in a complex society rather than for any one particular vocation. Anthropology, concerning itself with man's physical origin and the beginning of his social customs and institutions, is the basic and fundamental social science. History, which is one way of arranging all known facts, can assist an individual to gain a perspective in time by extending his experience over the horizon of his own age. Sociology presents an opportunity for the student to study and to understand the relationships of individuals and groups in the world in which he lives and to develop an understanding of his own roles in society.

HISTORY

Students may major or minor in

history in the Bachelor of Arts Degree program and may choose history as a teaching major or minor for certification purposes in either the Bachelor of Arts or the Bachelor of Science in Education. History may also be used to fulfill part of the requirement for the social science teaching major in the teacher training program of the college.

The courses below are recommended and approved for the programs indicated. Substitutions may be made with the prior approval of the Department Head.

Bachelor of Arts Degree, history major: History 131-132 (or 133-134) 231, 232 (or 3321, 3322 for juniors and seniors); Anthropology 131; History 331, 333, 436, 437, 4339. Total — 30 semester hours.

Bachelor of Arts Degree, history minor: History 131-132 (or 133-134), 231, 232 (or 3321, 3322 for juniors and seniors), 436, 437. Total — 18 semester hours.

Bachelor of Science in Education Degree or Bachelor of Arts Degree, history teaching major: History 131-132, 231, 232 (or 3321, 3322 for juniors and seniors); Anthropology 232;

*Effective Sept. 1, 1959, the Department of Sociology will become a separate department.

History 235, 331, 436, 437; 4339 or 4371. Total — 30 semester hours.

Bachelor of Science in Education Degree or Bachelor of Arts Degree, history teaching minor: History 131-132, 231, 232 (or 3321, 3322 for juniors and seniors), 235, 3324, 3325. Total — 21 semester hours.

In the Bachelor of Science in Education Degree, secondary program, and in the Bachelor of Arts Degree, a social science teaching option is available. This will provide certification for teaching in three fields, — government (civics), history, and social science. To qualify in this broad area in the Bachelor of Science in Education, the student will take 18 hours in government, 18 hours in history, 6 hours in economics, and 6 other hours in social science subjects. Approved history courses (18 hours) are: History 131-132, 231, 232 (3321, 3322 for juniors and seniors), 436, 437. Substitutions may be made with the prior approval of the Department Head. A student desiring to obtain this certification in the Bachelor of Arts Degree program should consult the Head of the Department of Government or the Head of the Department of 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 major or minor.

Candidates for the Degree of Doctor of Philosophy in History and for the Master of Arts Degree with a major in history will be accepted subject to the general requirements of the Graduate School. Doctoral candidates may major in American history with European history as the first minor.

This department cooperates in the Latin American Area Studies courses (see Page 26 in this bulletin.)

Requests for further information should be addressed to the Head of the Department.

For Undergraduates

131-132. DEVELOPMENT OF CIVILIZATIONS. (3:3:0 each)

Man in the social world; a study of economic, political, religious, and intellectual aspects of culture and their relation to modern society; special emphasis on the rise of Western civilization.

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)

235. HISTORY OF TEXAS. (3:3:0)

Survey of Texas history from colonial times to the present.

331. CLASSICAL CIVILIZATIONS: GREECE AND ROME. (3:3:0)

Greek and Roman civilizations and their contributions to Western civilization.

333. EUROPE, 1500-1789. (3:3:0)

The Renaissance and the Reformation; the Old Regime; the "Enlightenment."

335. MODERN EUROPE, 1815-1918. (3:3:0)

337. TUDOR AND STUART ENGLAND. (3:3:0)

338. EIGHTEENTH AND NINETEENTH CENTURY ENGLAND. (3:3:0)

3314-3315. CONTEMPORARY EUROPE; A TRAVEL COURSE. (6)

A field course conducted biennially in the summer. Lectures on and visits to culture centers and historic sites in western Europe. Scheduled for summer, 1960.

3316. THE NEAR EAST IN MODERN TIMES. (3:3:0)

3317. HISTORY OF MILITARY AFFAIRS. (3:3:0)

Relationship of civil to military aspects of modern war; the eighteenth century military system; nationalism and the beginning of mass war; civil control of the military in America; the impact of war on society.

3321. THE HERITAGE OF AMERICA TO 1865. (3:3:0)

3322. THE HERITAGE OF AMERICA SINCE 1865. (3:3:0)

3324. THE UNITED STATES, 1900-1932. (3:3:0)

3325. THE UNITED STATES SINCE 1932. (3:3:0)

3331. COLONIAL SPANISH SOUTH AMERICA. (3:3:0)

3332. SOUTH AMERICA SINCE INDEPENDENCE. (3:3:0)

For Undergraduates and Graduates

430. ENGLISH COLONIAL AMERICA. (3:3:0)

431. HISTORY OF SCIENCE AND TECHNOLOGY. (3:3:0)

Prerequisite: Senior classification and 6 hours in history.

432. CONSTITUTIONAL HISTORY OF THE UNITED STATES TO 1865. (3:3:0)

433. CONSTITUTIONAL HISTORY OF THE UNITED STATES SINCE 1865. (3:3:0)

435. DIPLOMATIC HISTORY OF THE UNITED STATES. (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 CIVIL WAR AND RECONSTRUCTION. (3:3:0)

4323. SPANISH COLONIAL NORTH AMERICA. (3:3:0)

4324. MEXICO SINCE INDEPENDENCE. (3:3:0)

4326. SOCIAL AND CULTURAL HISTORY OF TEXAS. (3:3:0)

4327. **THE AMERICAN FRONTIER, 1763-1803.** (3:3:0)
4328. **THE TRANS-MISSISSIPPI WEST, 1803 TO THE PRESENT.** (3:3:0)
4331. **HISTORY OF RUSSIA.** (3:3:0)
Prerequisite: 12 hours in history.
4332. **EUROPE, 1815-1870.** (3:3:0)
4334. **THE FRENCH REVOLUTION AND NAPOLEON.** (3:3:0)
Prerequisite: 12 hours in history.
4335. **EUROPE, 1870-1918.** (3:3:0)
4336. **EUROPE SINCE 1918.** (3:3:0)
Prerequisite: 12 hours in history.
4337. **TWENTIETH CENTURY BRITAIN.** (3:3:0)
Prerequisite: 6 advanced hours in history.
4339. **CONSTITUTIONAL HISTORY OF ENGLAND.** (3:3:0)
Prerequisite: 6 hours in history.
4341. **EARLY TEXAS HISTORY.** (3:3:0)
Prerequisite: 12 hours in history.
4342. **TEXAS HISTORY, THE REPUBLIC AND EARLY STATEHOOD.** (3:3:0)
Prerequisite: 12 hours in history.
4343. **RECENT TEXAS HISTORY.** (3:3:0)
Prerequisite: 12 hours in history.
4352. **THE CANADIAN DOMINION.** (3:3:0)
Prerequisite: 12 hours in history.
4353. **THE BRITISH EMPIRE.** (3:3:0)
Prerequisite: 6 advanced hours in history.
4354. **THE FAR EAST.** (3:3:0)
Prerequisite: 12 hours in history. Japan and China during the nineteenth and twentieth centuries.
4362. **MEDIEVAL CIVILIZATION.** (3:3:0)
Prerequisite: 6 advanced hours in history. Europe during the Middle Ages.
4365. **HISTORY OF THEOLOGY IN AMERICA.** (3:3:0)
4371. **TEACHING HISTORY IN THE HIGH SCHOOL.** (3:3:0)
Primarily for senior education majors. May be counted as history or education.

For Graduates

530. **SEMINAR IN SOUTHWESTERN HISTORY.** (3:3:0)
531. **SEMINAR IN TEXAS HISTORY.** (3:3:0)
532. **SEMINAR IN AMERICAN HISTORY.** (3:3:0)
May be repeated once for credit.
533. **SEMINAR IN EUROPEAN HISTORY.** (3:3:0)
May be repeated once for credit.
534. **HISTORICAL METHODS AND HISTORIOGRAPHY.** (3:3:0)
535. **THE AMERICAN HERITAGE.** (3:3:0)
A study of democratic concepts and institutions which have shaped the American way of life.
536. **SEMINAR IN LATIN AMERICAN HISTORY.** (3:3:0)
5335. **HISTORY APPRECIATION FOR TEACHERS.** (3:3:0)
- 631-632. **MASTER'S THESIS.** (6)
- 731-732. **DOCTORAL RESEARCH.** (6)
- 831-832. **DOCTORAL DISSERTATION.** (6)

ANTHROPOLOGY

Anthropology 131 and 232 are required courses for all majors and minors in anthropology. Junior classification is prerequisite to enrollment in advanced courses. Courses which may be credited toward a major in anthropology are: Sociology 336;

Philosophy 436. A student must receive at least a C in an advanced course if he wishes to have it count toward a major or minor in anthropology.

In the Master's Degree program, anthropology may be used as a minor only.

For Undergraduates

131. **THE NATURE OF MAN.** (3:3:0)
232. **CULTURAL ANTHROPOLOGY.** (3:3:0)
For Undergraduates and Graduates
330. **CULTURES AND PEOPLES OF THE SOUTHWEST.** (3:3:0)
332. **PHYSICAL ANTHROPOLOGY.** (3:3:0)
333. **THE PLAINS INDIANS.** (3:3:0)
334. **RACES, PEOPLES AND LANGUAGES OF NORTH AMERICA.** (3:3:0)
- 336-337. **ARCHAEOLOGY OF MEXICO.** (6)
A field course, summer only.
338. **CULTURE AND PERSONALITY.** (3:3:0)
431. **FIELD ARCHAEOLOGY.** (3)
Mapping, excavating and preparing reports on archaeological sites.
- 433-434. **SOUTHWESTERN ARCHAEOLOGY.** (6)
A field course, summer only. Lectures, research, excavation.

For Graduates

531. **SEMINAR IN ANTHROPOLOGY.** (3:3:0)
Anthropological literature, bibliography.
5335. **ORIGINS OF SOCIAL CUSTOMS AND INSTITUTION.** (3:3:0)
Primarily, but not exclusively, for graduate students working toward advanced degrees in education.

SOCIOLOGY*

Sociology 230, 233, 3312, and 436 and Anthropology 232 are required courses for all majors in sociology. Sociology courses may be used in the broad fields area for certification in the social sciences program. Courses numbered over 300 are advanced courses; junior classification or higher is prerequisite to enrollment in advanced courses. Minimum requirement for majors in sociology, 30 semester hours. A student must receive at least a C in an advanced course in sociology if he wishes to have it count toward a major or minor in sociology.

For Undergraduates

230. **INTRODUCTION TO SOCIOLOGY.** (3:3:0)
233. **CURRENT SOCIAL PROBLEMS.** (3:3:0)
235. **MARRIAGE.** (3:3:0)
History, present status, and current problems of the marriage institution.
- For Undergraduates and Graduates
331. **RURAL SOCIOLOGY.** (3:3:0)
333. **AMERICAN MINORITY PROBLEMS.** (3:3:0)

*Effective Sept. 1, 1959, the Department of Sociology will become a separate department.

336. SOCIETY AND CULTURE OF MEXICO. (3:3:0)

338. THE SOCIOLOGY OF THE PERSON. (3:3:0)

An examination of the effects of group membership on individual behavior.

3312. COMMUNITY ORGANIZATION. (3:3:0)

The community in its ecological, cultural and social aspects.

431. REGIONAL PATTERNS IN AMERICAN LIFE. (3:3:0)

432. STUDIES IN SOCIAL WORK. (3:3:0)

Prerequisite: senior classification or consent of instructor. Basic principles of and practices in social case work; supervised training with local agencies.

433. CRIMINOLOGY. (3:3:0)

434. THE SOCIOLOGY OF KNOWLEDGE. (3:3:0)

435. COLLECTIVE BEHAVIOR AND SOCIAL MOVEMENTS. (3:3:0)

436. CONTEMPORARY SOCIOLOGICAL THEORIES. (3:3:0)

437. SOCIAL CHANGE. (3:3:0)

Stability and continuity in social change; theories of progress; social trends.

438. Population Problems. (3:3:0)

For Graduates

531. SEMINAR IN SOCIAL PROBLEMS. (3:3:0)

Primarily for majors and minors in sociology.

532. RESEARCH METHODS IN SOCIOLOGY. (3:3:0)

Analysis of methods of sociological research; interpretation of data.

631-632. MASTER'S THESIS. (6)

Department of Journalism

Professor:

Mr. Garets, Head

Instructor:

Mr. Whitted

Associate Professor:

Mrs. Allen

In the education of its students the Department of Journalism attempts to supply accurate vocational information; sound training in such journalistic techniques as writing, editing, layout, photography and typography; plus a broad understanding of the place and function of the mass media of communication in a democracy.

All journalistic work demands technical skill and experience along with the widest possible education. In addition to class and lab work, the student gains experience on student publications and through summer employment and internships, the latter supervised by the Department in cooperation with the Texas Daily Newspaper Association and other professional groups.

Students majoring in journalism are required to complete 36 semester hours. By the time the student reaches his junior year he should consider one of the several fields of emphasis which the Department offers. Four options are available: news-editorial, newspaper advertising, community newspaper, and radio-television. The Department offers both a teaching major and minor in conjunction with the Department of Education for those intending to enter secondary school work. A journalism major or minor can be shaped to serve as vocational preparation in any of at least five different fields:

1. Service on the newspaper, large or small.
2. Work on the 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.

Those interested in a major or

minor in journalism should call or write the Journalism Department to investigate the sample curricula for the four sequences offered. Such curricula are guides built around a core of courses. Each student has considerable flexibility in taking courses in line with his own particular career interest.

The news-editorial option includes Journalism 130, 231, 232, 233, 336, 3313, 430 and 438-439 in the 36 required hours. The minor must include Journalism 130, 231 and 438 in the minimum of 18 required hours. Students must be able to type to enter Journalism 231. Requirements in other options within the department vary somewhat.

Majors and 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.

Economics 231-232 and Psychology 130, Philosophy 230, or Sociology 230 are also required for a major in journalism.

For Undergraduates

130. INTRODUCTION TO JOURNALISM. (3:3:0)

A survey of journalism and its related fields intended to give the student an understanding of communication agencies in modern life and a broad picture of the vocational opportunities.

231, 232. NEWSPAPER REPORTING. (3:2:3 each)

Practice in gathering and writing news. Journalism 231 is prerequisite to all higher journalism courses for both majors and minors. Majors and minors enrolled in this course are required to work on the Treader.

233. NEWSPAPER FEATURE WRITING. (3:3:0)

Special feature stories; sources for subjects; collection of facts; practice in writing the news feature, side feature, color story.

330. ADVERTISING TYPOGRAPHY AND LAYOUT. (3:2:3)

Brief history and evolution of typography; survey of type faces; principles of type selection; basic art, engraving, printing and projection techniques; effective advertising layout; techniques of advertising production.

332. MAGAZINE WRITING AND EDITING. (3:3:0)

Techniques in writing for current magazines; a survey of editorial problems of the magazine; market study and marketing; layout and production problems.

334. INDUSTRIAL JOURNALISM. (3:3:0)

Study of techniques of writing technical articles and reporting news of engineering, science and other specialized interests. Stress will be placed on the preparation of fact articles for trade and technical journals. Attention will be given editing and layout problems of the technical press. Study of technical publications and of job possibilities in the fields.

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)

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. Prerequisites: Journalism 231, 232.

3311. AGRICULTURAL AND HOME ECONOMICS JOURNALISM. (3:3:0)

Prerequisite: Junior standing. Designed for students of agriculture and home economics. Preparation in the principles of gathering and writing news, feature stories, and magazine articles in their respective fields. Lectures on editing and marketing copy, and on preparing the radio and television newscast.

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 in picture editing.

3315. ADVANCED PHOTOJOURNALISM. (3:1:6)

Prerequisite: Journalism 3313. Reportorial duties with various cameras for newspaper and magazine publication. Study of picture markets and study and practice in picture editing. Practical work on advanced photojournalism problems.

3318. RADIO-TELEVISION NEWS WRITING. (3:3:0)

Prerequisite: Junior standing and (for majors and minors) completion of 231. Training in news writing for radio and television presentation; preparation of copy for both wire and local news reports; interviews and other multiple voice news shows. Speech 335 recommended. May be taken for speech credit.

3319. RADIO-TELEVISION ADVERTISING CONTINUITY WRITING. (3:3:0)

A study of network and station organization and application of techniques of advertising continuity writing to radio and television presentation. Preparation and presentation of commercial copy for radio and television. Speech 335 recommended. May be taken for speech credit.

431. REVIEWING AND REPORTING THE FINE ARTS. (3:3:0)

Lecture and class discussions on critical standards as they relate to writing about books, music, painting, motion pictures and other art forms. Considerable experience in writing reviews. For students seeking general culture as well as for those preparing for newspaper departmental work.

For Undergraduates and Graduates**333. NEWSPAPER MANAGEMENT, PROMOTION AND CIRCULATION. (3:3:0)**

Weekly and daily newspaper revenues and expenditures; budgets, accounting methods and cost-finding systems; editorial, advertising and circulation promotion; circulation problems and methods. Field trips, individual study and research.

411. SPECIAL PROBLEMS IN JOURNALISM. Cr. 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 legal aspects of the newspaper, radio, television and advertising.

432. JOURNALISM FOR THE HIGH SCHOOL TEACHER. (3:3:0)

Study and practice with the problems met by a publications supervisor in organizing and directing high school newspapers and year books, functions of high school publications, organization and training of the staff; editorial and business problems; problems with printers.

433. PUBLIC OPINION AND PROPAGANDA. (3:3:0)

The nature of public opinion; the role of the newspaper 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. May be taken for psychology credit.

434. EDITORIAL WRITING. (3:3:0)

Theory and practice of writing editorials; a study of contemporary editorial pages and editorials, with analysis of style, content, and purpose.

435. NEWSPAPER ADVERTISING PROBLEMS AND METHODS. (3:2:3)

Selling and servicing newspaper advertising; newspaper advertising makeup; rate structures; procedure in newspaper advertising departments.

438, 439. EDITING. (3:2:4)

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 Toreador copy desk.

Department of Mathematics

Professors:

Mr. Hazlewood, Head
Mr. Heineman
Mr. Underwood

Mr. Fuller
Mr. Sparks

Associate Professors:

Mr. Parker
Mr. Woodward

Mr. Riggs

Assistant Professors:

Mr. Gilmore
Miss May
Mrs. Roberts
Mr. Wenjen

Mr. Lindsay*
Mr. Perel
Mrs. Rowland
Mr. Willingham

Instructors:

Mrs. Bailey
Mr. Caskey
Miss Hayes
Miss McGlothlin
Mr. Morton
Mr. Scott
Mr. Shurbet
Mrs. Strandtmann

Mrs. Carpenter
Mrs. Harris
Mrs. Kennedy
Mr. Moreland
Mrs. Power
Mrs. Sewell
Mr. Smith
Mrs. Sullenberger

Part-time Instructors:

Mrs. Caraway
Mr. Phillips
Mrs. Rekers
Mrs. Young

Mr. Lee
Mr. Powell
Mrs. Waldron

Teaching Fellows:

Miss Calvert
Mr. Fargason
Mr. Kennedy
Mr. Lewis
Miss Wang

Mr. Ekelund
Mr. Jordan
Mr. Lester
Mr. Turner

The age of missiles, earth satellites, and space ships introduced by the "Sputniks," "Jupiters," and "Vanguard" of 1957 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. Certainly no student should elect mathematics as his major field unless he likes the subject and has obtained above-average grades in it.

Students preparing to teach may major or minor in mathematics in the Bachelor of Arts Degree or the Bachelor of Science Degree program. They, also, may choose mathematics as a teaching major or minor in the Bachelor of Science in Education Degree work.

Courses recommended for the teaching major are: Mathematics 133 (or 130), 131, 132, 231, 232, 238, 337, 431 and 433 (or 333). Substitutions may be made only with prior approval of the Department Head.

A minimum of 36 hours of mathematics is required for a Bachelor of Science Degree in mathematics while 33 hours normally are required for the Bachelor of Arts Degree.

The 6 hours of advanced work

(courses numbered 300 and above) required of all minors must be approved by the Department Head.

Students interested in graduate work in mathematics should consult the Graduate School Bulletin. Courses are offered leading to the Master's Degree with a major or minor in mathematics and to a minor only at the doctorate level.

A freshman course especially designed for engineers and science majors is Mathematics 133, accompanied by Mathematics 131, and followed by Mathematics 132. For arts and sciences students, excluding science majors, the corresponding courses are Mathematics 130 or 051 for three required hours, plus Mathematics 131, 138, or 238 for three more hours.

For Undergraduates

032. INTRODUCTORY GEOMETRY. (3:3:0)

A course in elementary geometry open to students who cannot satisfy the plane geometry prerequisite for Math. 131. Credit for this course may not be used to satisfy normal degree requirements, and will not be allowed to students who use high school geometry for college entrance.

*051. INTRODUCTORY ALGEBRA. (5:5:0)

A comprehensive review of high school algebra plus the topics covered in Math. 130. Only 3 of the 5 credit hours may be applied to normal degree requirements.

*052. COLLEGE ALGEBRA. (5:5:0)

Required of engineering students whose placement test scores indicate a deficiency in high school algebra. A comprehensive review of high school algebra plus the topics covered in Math. 133. Only 3 of the 5 credit hours may be applied to normal degree requirements. A grade of C or better in the course will entitle the student to credit equivalent to Math. 133, and a grade of D earns credit equivalent to Math. 130. Math. 131 may not be taken simultaneously with this course.

*130. ALGEBRA (3:3:0)

Prerequisite: One unit of high school algebra. Review of high school algebra; quadratic equations; graphs; binomial theorem; variations; progressions. Credit will not be allowed for both Math. 130 and 133.

131. TRIGONOMETRY. (3:3:0)

Prerequisite: One unit of high school algebra, one unit of plane geometry, and Math. 133 or 130, or concurrent registration in Math. 133 or 130. Trigonometric functions; radians; logarithms and exponential equations; solutions of triangles; functions of composite angles; identities; trigonometric equations.

132. ANALYTIC GEOMETRY. (3:3:0)

Prerequisite: Math. 133 or 130, and 131. The straight line and conic sections; transformation of coordinates; polar coordinates; parametric equations; introduction to solid analytic geometry.

*133. COLLEGE ALGEBRA. (3:3:0)

Prerequisite: Placement test scores which indicate proficiency in high school algebra. A standard course in college algebra required of all engineering students, and recommended for majors and minors in mathematics.

*135. MATHEMATICS IN GENERAL EDUCATION. (3:3:0)

Basic concepts in elementary mathematics, including number sets and operations. Designed especially for majors in elementary education. It may not replace Math. 133 in satisfying degree requirements.

134. MATHEMATICS OF FINANCE. (3:3:0)

Prerequisite: Math. 130 or 133. Compound interest; discount; annuities; amortization; depreciation; sinking funds; evaluation of bonds; introduction to statistical methods.

230. AGRICULTURAL MATHEMATICS. (3:3:0)

For students of agriculture. Elementary algebra; percentage; linear equations; elementary trigonometry; mensuration and applications; graphical representation of statistics.

231-232. DIFFERENTIAL AND INTEGRAL CALCULUS. (3:3:0 each)

Prerequisite: Math. 132 or concurrent registration. Differentiation; rates; maxima and minima; curvature; formal integration; definite integrals; areas; lengths; volumes; centroids; moment of inertia.

238. STATISTICS. (3:3:0)

Prerequisite: Math. 130 or 133. Collection and tabulation of data; bar charts; graphs; sampling; averages; dispersion; correlation; index number; normal curve; probability; applications to various fields.

For Undergraduates and Graduates

331. APPLICATIONS OF CALCULUS. (3:3:0)

Prerequisite: Math. 232. Surfaces; pressure; work; partial differentiation; series; multiple integrals; indeterminate forms; hyperbolic functions.

332. DIFFERENTIAL EQUATIONS. (3:3:0)

Prerequisite: Math. 232. Solutions of ordinary differential equations, with geometric and physical applications.

333. ELEMENTARY MODERN ALGEBRA. (3:3:0)

Prerequisite: Math. 231 or consent of the instructor. The number system; mathematical induction; integral domains; determinants and matrices; rings and fields.

334. HISTORY OF MATHEMATICS. (3:3:0)

Prerequisite: Math. 231 or consent of the instructor. A survey of the historical development of mathematics from the earliest records to current results; the history of the application of mathematics to science and social science; the impact of mathematics on the development of our culture and civilization.

337. COLLEGE GEOMETRY. (3:3:0)

Prerequisite: Math. 132. Directed segments and angles; similitude; inversion; geometry of the triangle, quadrilateral, and circle. Recommended for teachers of geometry in high school.

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 SECONDARY MATHEMATICS. (3:3:0)

Prerequisite: 12 semester hours of college mathematics and consent of instructor. Particularly for those students who are within

*Not more than 3 semester hours' credit, applicable to a degree, may be obtained from obtained from 051, 052, 130, 133, or 135, or any combination thereof.

one semester of their practice teaching.

432. ADVANCED DIFFERENTIAL EQUATIONS. (3:3:0)

Prerequisite: Math. 332. Total differential equations; systems of differential equations; partial differential equations.

433. THEORY OF EQUATIONS. (3:3:0)

Prerequisite: Math. 232. Complex numbers; polynomial equations; symmetric functions; determinants and matrices; systems of equations.

434, 435. ADVANCED CALCULUS. (3:3:0 each)

Prerequisite: Math. 232. Sets; functions; vector fields, partial derivatives; power series; theory of integration; line, surface, and multiple integrals; introduction to complex functions and to Fourier series.

436. INTRODUCTION TO FINITE GROUPS. (3:3:0)

Prerequisite: Math. 232 and consent of the instructor. Lagrange theorem; Cayley theorem; gamma groups; conjugate classes; normalizer; Sylow theory.

437. THEORY OF NUMBERS. (3:3:0)

Prerequisite: Math. 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. Direction angles and cosines; equations of space curves, lines, and surfaces; canonical forms.

439. VECTOR ANALYSIS. (3:3:0)

Prerequisite: Math. 232. Scalar and vector products; gradient; divergence; curl; applications.

4311. EXTENDED ANALYTIC GEOMETRY. (3:3:0)

Prerequisite: Math. 232. Essential features of a coordinate system for n variables on a plane and in space of three dimensions. Applications to algebra, number theory, and calculus.

4312. NUMERICAL MATHEMATICAL ANALYSIS. (3:3:0)

Prerequisite: Math. 332, or concurrent registration in Math. 332. Finite differences; interpolation; numerical solutions of algebraic, transcendental, and differential equations; empirical equations.

4313. PROBABILITY. (3:3:0)

Prerequisite: Math. 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. 232. Frequency functions; moments; probability; correlation and regression; testing hypotheses; small sample distributions; analysis of variance; nonparametric methods; sequential analysis.

4317. ACTUARIAL MATHEMATICS. (3:3:0)

Prerequisite: Math. 232. Theory of mortality

tables; life annuities; premiums; terminal reserves; joint-life annuities and insurance; selected topics in actuarial practice.

For Graduates

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 different areas such as algebra, geometry, statistics, and analysis.

533. ADVANCED TOPICS IN ANALYSIS. (3:3:0)

Prerequisite: Math. 332. Partial differential equations; boundary value problems; related topics.

535. ANALYTIC PROJECTIVE GEOMETRY. (3:3:0)

Prerequisite: Math. 438. Analytic treatment of the projective properties of systems of lines and the conic sections.

536, 537. MODERN ALGEBRA. (3:3:0 each)

Prerequisite: Math. 434 or consent of instructor. The number system; groups; rings; fields; linear algebra; Galois theory.

5312, 5313. FUNCTIONS OF A COMPLEX VARIABLE. (3:3:0 each)

Prerequisite: Math. 435. The algebra of complex numbers and their geometric representations: conformal mapping; power series; properties of analytic functions: differentiation and integration; special definite integrals.

5314, 5315. FUNCTIONS OF A REAL VARIABLE. (3:3:0 each)

Prerequisite: Math. 435. The real number system; set theory; Borel-Lebesgue measure; Riemann, Lebesgue, and Stieltjes integrals.

5321. METHODS OF APPLIED MATHEMATICS. (3:3:0)

Prerequisite: Math. 432. Methods and procedures required for applying mathematics to graduate and postgraduate level physical problems. Linear transformations; orthogonal sets; linear integral equations; complex variables; residue theory and conformal mappings; transform calculus.

631-632. MASTER'S THESIS. (6)

ASTRONOMY

For Undergraduates

111. SURVEY OF ASTRONOMY. (1:1:0)

Prerequisite: College standing. 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: Math 130 or 133 and 131, with a grade of C or better. The solar, stellar, and galactic systems, studied with attention to technical details.

Department of Music

Professors:

Mr. Hemmle, Head

Associate Professor:

Mr. Elliott

Assistant Professor:

Miss van Appledorn

Instructors:

Mr. Deahl

Mr. Hancock
(part time)

Mr. LaMar

Mr. McCarty

Mrs. Short
(part time)

Mr. Wiley

Mr. Ellsworth

Mr. Kenney

Mr. Lawrie

Mr. Post

Mr. Taylor*

The Department of Music has four main objectives: (1) to educate teachers of music; (2) to help each student attain the skills and proficiencies of a strong musician, and at the same time through liberal arts courses, the same sort of broad general education which is the intellectual foundation of the cultivated man or woman; (3) to develop talent to the highest degree of artistic capability; (4) to help any student enrolled in the college acquire discriminating taste and sound critical judgment through courses in music, supplemented by concerts and through association with distinguished teachers.

Non-music 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 non-music 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 025 and 026 may be repeated for credit); Music Literature 131, 132, 431, 432; Music Ensemble 010-1 (Tech Choir), 010-2 (Festival Chorus), 010-3 (Tech Men's Glee Club), 010-4 (Tech Opera Theater), 010-5 (Tech Singers), 011 (Orchestra), 013-A (Tech Concert Band),

013-B (Tech Symphonic, Winds), 013-C (Tech Stage Band).

The Department of Music offers the Bachelor of Music Degree with a major in music education (instrumental or vocal), piano or voice.

This degree is for the student who expects to teach or direct vocal or instrumental music in the public schools, or for the student who desires concentration in performance and studio teaching.

Entering freshmen 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 who qualify for courses below 125 must register for Music 025 until 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 voice or piano 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. The De-

*On Leave 1958-59

partment of Music will supply specific requirements for entrance into Applied Music 125 upon request. Additional credit for applied music may apply toward the Bachelor of Music Degree only when carried as secondary instruments.

In accordance with recommendations of the sub-committee appointed by the Council of Deans, it is possible for students to receive credit for college level work accomplished prior to entrance into this College. This may be done through advanced standing examinations administered by the faculty of the Department of Music after obtaining permission of the Dean of Arts and Sciences. Advanced standing examinations will be administered only in the fields of applied music (secondary instruments) 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. The credit received through advanced standing may be recorded, but not for credit toward the total number of semester hours required for graduation.

At the end of the sophomore year, the faculty will review the work of of all applied music students who wish to enter advanced classes. 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 sightsinging by examination or course of study.

Attendance at 75 per cent of the student recitals, faculty recitals, civic music series is required of all music majors. Practical experience in accompanying not to exceed one clock hour per week is required of students enrolled with piano as a principal instrument.

Students are encouraged to minor

in any area outside the major field. It may require additional time to obtain a teaching minor.

Minimum requirements for the Degree of Bachelor of Music with a major in applied music, in terms of semester hours, are as follows:

	Sem. Hrs.
1. English	12
2. Government	6
3. American history	6
4. Foreign language	6
5. Academic electives	12
(Additional foreign language recommended for voice majors)	
6. Applied music, music literature, music theory, and music ensemble (band, chorus, orchestra, opera theater), but not including freshman and sophomore physical education, band, or military science, to total 126 semester hours.	
7. Band, basic air or military science, or physical education	4-6
Minimum requirements in terms of semester hours for the Bachelor of Music Degree with a major in music education and leading to a Provisional Teaching Certificate qualifying the graduate to teach the special subject of music at either all grade levels or secondary level, are as follows:	

	Sem. Hrs.
1. English	12
2. Music literature	6
3. History	6
4. Government	6
5. Science or mathematics	6
6. Other general courses	9
7. Professional education	24
8. Free electives	18
(The free electives are designed to meet the student's need whether it be an academic minor, a broader education, or additional study in the professional field.)	
9. Applied music, music literature, music education, music theory, and music ensemble (band, chorus, orchestra, opera theater), but not including freshman and sophomore physical education, band, or military science, to total 135 semester hours.	
10. Band, basic air or military science, or physical education	4-6

BACHELOR OF MUSIC

MUSIC EDUCATION MAJOR

(All-Level Certificate)

(Voice, Piano, Orchestral or Band Instrument)

Freshman Year

First Semester	Credit
Ap. Music 125—Prin. Instrum.	2
Mus. Lit. 131—Intro. to Mus. Lit.	3
Mus. Th. 133—Elem. Theory	3
Eng. 131—Col. Rhet.	3
Educ. 130—Intro. to Educ.	3
Free Elective	2
Ensemble	1
Band, P.E., Basic ROTC	1-2

Second Semester	Credit
Ap. Mus. 126—Prin. Instrum.	2
Mus. Lit. 132—Intro. to Mus. Lit.	3
Mus. Th. 134—Elem. Theory	3
Eng. 132—Col. Rhet.	3
Math. or Science	3-4
Free Elective	2
Ensemble	1
Band, P.E., Basic ROTC	1-2

18-20

Sophomore Year

First Semester	Credit
Ap. Mus. 225—Prin. Instrum.	2
Mus. Th. 233—Intermed. Theory	3
Eng. 231—Mast. of Lit.	3
Math. or Science	3-4
Hist. 231—Hist. U.S. to 1865	3
Free Elective	2
Ensemble	1
Band, P.E., Basic ROTC	1-2

18-20

Second Semester	Credit
Ap. Mus. 226—Prin. Instrum.	2
Mus. Th. 234—Intermed. Theory	3
Eng. 232—Mast. of Lit.	3
Educ. 232—Educ. Psy.	3
Hist. 232—Hist. U.S. Since 1865	3
Free Elective	2
Ensemble	1
Band, P.E., Basic ROTC	1-2

18-19

Junior Year

First Semester	Credit
Ap. Mus. 325—Prin. Instrum.	2
Mus. Educ. 328—Instrum. Conduc.	2
*Mus. Educ. 337—Elem. Sch. Tch. of	
Mus.	3
Mus. Theory 333—Form and Comp.	3
Govt. 233—Amer. Govt., Org.	3
Psy. 335—Adol. Psy. or	
Educ. 334—Curric. Dev. in Sec. Educ. ...	3
Free Elective	1
Ensemble	1

18

Second Semester	Credit
Ap. Mus. 326—Prin. Instrum.	2
Mus. Educ. 327—Choral Meth. and Tech. ...	2
Mus. Educ. 338—Sec. Sch. Tch. of Music. ...	3
Mus. Theory 334—Form and Comp.	3
Govt. 234—Amer. Govt., Func.	3
**Psy. 331—Child Psy. or Educ. 333—	
Curric. Dev. in Elem. Educ.	3
Free Elective	1
Ensemble	1

18

Senior Year

First Semester	Credit
Mus. Lit. 431—Hist. of Music	3
Mus. Th. 428—Instrumentation	2
**Educ. 431—Stud. Tch. (Elem.)	3
Academic Electives	3
Free Elective	3
Ensemble	1

15

Second Semester	Credit
Mus. Lit. 432—Hist. of Music	3
Educ. 432—Stud. Tch. (Secon.)	3

Academic Electives	6
Ensemble	1
Free Elective	3
	16

**BACHELOR OF MUSIC
PIANO OR VOICE MAJOR*******Freshman Year**

First Semester	Credit
Ap. Mus. 125—Prin. Instrum.	2
Mus. Lit. 131—Intro. to Mus. Lit.	3
Mus. Th. 133—Elem. Theory	3
Eng. 131—Col. Rhet.	3
Foreign Language	3
Free Elective	2
Ensemble	1
Band, P.E., Basic ROTC	1

18

Second Semester	Credit
Ap. Mus. 126—Prin. Instrum.	2
Mus. Lit. 132—Intro. to Mus. Lit.	3
Mus. Th. 134—Elem. Th.	3
Eng. 132—Col. Rhet.	3
Foreign Language	3
Free Elective	2
Ensemble	1
Band, P.E., Basic ROTC	1

18

Sophomore Year

First Semester	Credit
Ap. Mus. 235—Piano or Voice	3
Ap. Mus. 2113—Class Voice or	
Ap. Mus. 2123—Class Piano	1
Mus. Th. 233—Intermed. Theory	3
Eng. 231—Mast. of Lit.	3
Govt. 233—Amer. Govt., Org.	3
Ensemble	1
Band, P.E., or Basic ROTC	1-2

15-16

Second Semester	Credit
Ap. Mus. 236—Piano or Voice	3
Ap. Mus. 2114—Class Voice or	
Ap. Mus. 2124—Class Piano	1
Mus. Th. 234—Intermed. Theory	3
Eng. 232—Mast. of Lit.	3
Govt. 234—Amer. Govt., Func.	3
Ensemble	1
Band, P.E., or Basic ROTC	1-2

15-16

Junior Year

First Semester	Credit
Ap. Mus. 345—Piano or Voice	4
Mus. Lit. 330—Vocal Repertoire or	
Mus. Lit. 332—Piano Repertoire	3
Mus. Ed. 328—Instrum. Conduc.	2
Mus. Th. 333—Form and Comp.	2
Ensemble	1
Academic Elective	3

15

Second Semester	Credit
Ap. Mus. 346—Piano or Voice	4
Elective	3
Mus. Educ. 327—Choral Meth. & Tech. ...	2
Mus. Th. 334—Form and Comp.	3
Ensemble	1
Academic Elective	3

16

*Students preparing to direct band or orchestra, substitute Mus. Educ. 336 for Mus. Educ. 337.

**Students desiring certification in music for teaching at the secondary level only should substitute Educ. 334 for Psy. 331 or Educ. 333, and substitute Educ. 434 for Educ. 431.

***Students majoring in voice are urged to elect additional foreign language.

Senior Year

First Semester	Credit
Ap. Mus. 445—Piano or Voice	4
Mus. Lit. 431—Hist. of Music	3
Mus. Ed. 437—Piano Pedagogy or Mus. Ed. 433—Voice Pedagogy	3
Mus. Th. 427—Instrumentation	2
Ensemble	1
Amer. Hist.	3
	16

Second Semester	Credit
Ap. Mus. 446—Piano or Voice	4
Mus. Lit. 432—Hist. of Music	3
Elective	3
Mus. Th. 428—Instrumentation	2
Ensemble	1
Amer. Hist.	3
	16

APPLIED MUSIC

Additional fees for Applied Music are shown under **Expenses**, in General Information Bulletin. Laboratory hours shown for applied music courses are student-teacher contact hours. Applied music students are required to practice a minimum of 3 clock hours for each semester-hour credit.

For Undergraduates

113, 114. PERCUSSION. (1:0:2)
Fundamental knowledge of snare drum. Ability to tune and play timpani. Performance on all instruments of the battery. Laboratory ensemble experience.

1113, 1114. VOICE. (1:0:2)
Class instruction. Correct posture and studies for breath control; development of resonance; study of vowel formation; vocalization. Simple songs.

1123, 1124. PIANO. (1:0:2)
Class instruction. Sight reading and repertoire of simple piano materials. Harmonization and transposition of easy compositions.

213, 214. STRINGS. (1:0:2)
Ability to play scales on violin, viola, cello and bass. Laboratory ensemble experience.

2113, 2114. VOICE. (1:0:2)
Class instruction. A continuation of Ap. Mus. 1113, 1114.

2123, 2124. PIANO. (1:0:2)
Class instruction. A continuation of Ap. Mus. 1123, 1124.

313, 314. BRASS INSTRUMENTS. (1:0:2)

Prerequisite: Ap. Mus. 115. Ability to play scales on trumpet, French horn, trombone, and tuba. Laboratory ensemble experience.

413, 414. WOODWINDS. (1:0:2)
Prerequisite: Ap. Mus. 115. Ability to play scales on flute, oboe, clarinet, and bassoon. Laboratory ensemble experience.

PIANO

025, 026, 115, 116, 215, 216, 315, 316. Piano. (2:0:1); (1:0:3/2)

The technical work and repertoire recommended by the State Department of Education in Bulletin 449, Pages 64 to 72.

125, 126. PIANO. (2:0:1)
Major and minor scales, arpeggios, broken chords, Bach, two-part inventions; sonatas;

Haydn, Mozart, and Beethoven; romantic and modern compositions.

225, 226, 235, 236. PIANO. (2:0:1) and (3:0:1)

Major and minor scales, arpeggios, broken chords, 16th notes at MM 100 to 120. Bach, two and three-part inventions, well-tempered clavier; sonatas; Mozart, Beethoven, Op. 10; romantic and modern compositions.

325, 326, 345, 346. PIANO. (2:0:1 and 4:0:1)
Prerequisite: Faculty approval of performance proficiency. Bach, Well-Tempered Clavier; 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

425, 426, 435, 436, 445, 446. PIANO. (2:0:1, 3:0:1 and 4:0:1)

Bach, Well-Tempered Clavier; Beethoven, sonatas equivalent in difficulty to Op. 31; Chopin; ballads, etudes, scherzi; romantic and modern compositions.

VOICE

025, 026, 115, 116, 215, 216, 315, 316. VOICE. (2:0:1); (1:0:3/2)

For course description, see Ap. Mus. 1113, 1114.

125, 126. VOICE. (2:0:1)

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.

225, 226, 235, 236. VOICE. (2:0:1) (3:0:1)
More advanced technique; songs by Handel, Mozart, Schubert, Schumann, and other composers of the Classic and Romantic Periods. Repertoire for general use.

325, 326, 345, 346. VOICE. (2:0:1) (4:0:1)
Advanced vocal technique; 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

425, 426, 435, 436, 445, 446. VOICE. (2:0:1) (3:0:1) (4:0:1)

Summary of previous technical exercises; more difficult songs of classic, romantic and modern composers. Performance in German, French, and Italian languages.

ORGAN

For Undergraduates

025, 026, 115, 116, 215, 216, 315, 316. ORGAN. (2:0:1 and 1:0:1/2)

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.

125, 126. ORGAN. (2:0:1)

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.

225, 226. ORGAN. (2:0:1)

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.

325, 326. ORGAN. (2:0:1)

Bach, preludes, toccatas, fantasies, fugues, concertos and concert trio sonatas; selected romantic and modern repertoire. Elementary improvisation.

425, 426. ORGAN. (2:0:1)

Bach, major works; representative major

works of pre-Bach, romantic and modern composers. Improvisation.

For Undergraduates and Graduates
 435, 436, 445, 446. **ORGAN.** (3:0:1 and 4:0:1)
 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

025, 026, 115, 116. **VIOLIN.** (2:0:1 and 1:0:½)

The technical work and literature outlined in Bulletin 449 of the State Department of Education, or work of equal difficulty.

125, 126. **VIOLIN.** (2:0:1)
 Scales and arpeggios. Studies of Wolfahrt, Op. 74 or Op. 45. Sevcik; Preparatory Double Stops; Kayser, Book 1, Op. 20. Representative solos.

225, 226. **VIOLIN.** (2:0:1)
 Kayser, Book II; continued Sevcik, Op. 9; Dancila, School of the Five Positions; scales (16th slurred). Studies; Sevcik, Op. 36. Representative solos.

325, 326. **VIOLIN.** (2:0:1)
 Scales and arpeggios, studies as needed. Concertos and sonatas selected for technical and musical advancement. Compositions of varying type and difficulty.

For Undergraduates and Graduates
 425, 426, 435, 436. **VIOLINS** (2:0:1 and 3:0:1)
 Scales and arpeggios, studies as needed. Concertos and sonatas by Bach, Mendelssohn, Bruch, Franck, Beethoven, Lalo, and others. Solo repertoire.

VOLONCELLO

025, 026, 115, 116. **VOLONCELLO.** (2:0:1 and 1:0:½)

The technical work and literature outlined in Bulletin 449 of the State Department of Education or work of equal difficulty.

125, 126. **VOLONCELLO.** (2:0:1)
 Scales and arpeggios. Studies of Grutzmacher, Lee, and Klengel. Representative solos.

225, 226. **VOLONCELLO.** (2:0:1)
 Scales and arpeggios. Studies as needed. Studies of Vol. I. Schlemmiller, Dotzauer, Sevcik, and Romberg Concerto. Representative solos.

325, 326. **VOLONCELLO.** (2:0:1)
 Scales and arpeggios. Studies as needed. Studies of Schroeder, Lee Op. 31, Kreutzer studies. Representative solos.

425, 426, 435, 436. **VOLONCELLO.** (2:0:1 and 3:0:1)
 Scales and arpeggios, concertos and sonatas by Beethoven, Lalo, Brahms, and others. Solo repertoire.

VIOLA

025, 026, 115, 116. **VIOLA.** (2:0:1 and 1:0:½)

The technical work and literature outlined in Bulletin 449 of the State Department of Education, or work of equal difficulty.

125, 126. **VIOLA.** (2:0:1)
 Scales and arpeggios. Studies and exercises by Lifschey, Sitt, Wolfahrt, Representative solos.

225, 226. **VIOLA.** (2:0:1)
 Scales and arpeggios as needed. Studies by Campagnoli, Lifschey, Kreutzer, Representative solos.
 least one Mozart concerto and one contemporary sonata.

325, 326. **VIOLA.** (2:0:1)

Scales and arpeggios as needed. Studies by Kreutzer, Mazas, Bach suites, representative solos. Sonatas and concertos by Telemann, Haydn.

425, 426, 435, 436. **VIOLA.** (2:0:1 and 3:0:1)
 Studies as needed. Advanced repertoire sonatas by Brahms, Bach, Hindemith. Concertos by Handel, Mozart, Orchestral Studies.

DOUBLE BASS

025, 026, 115, 116. **DOUBLE BASS.** (2:0:1 and 1:0:½)

Scales and intervals and selected compositions as needed.

125, 126. **DOUBLE BASS.** (2:0:1)
 Scales and arpeggios. Studies from Simandl Book I. Appropriate solos.

225, 226. **DOUBLE BASS.** (2:0:1)
 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 concerti.

425, 426, 435, 436. **DOUBLE BASS.** (2:0:1 and 3:0:1)

Scales and arpeggios. Studies in degree of advancement equivalent to Simandl and Kreutzer Etudes. Orchestral studies of an advanced type. Concert repertoire.

FLUTE

For Undergraduates

115, 116. **FLUTE.** (1:0:½)
 Development of embouchure, breath control, tone and articulation. Major, minor, chromatic scales in simple articulations; simple melodies; broken arpeggios. Representative solos.

125, 126. **FLUTE.** (2:0:1)
 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.

225, 226. **FLUTE.** (2:0:1)
 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.

325, 326. **FLUTE.** (2:0:1)
 Studies by Boehm continued; Popp-Soussmann, Part III; Roodenburg. Scale, Interval, and Arpeggio Studies for Flute; Studies by Briccialdi. Representative solos, including at least one contemporary sonata.

For Undergraduates and Graduates
 425, 426, 435, 436. **FLUTE.** (2:0:1 and 3:0:1)
 Studies by Soussmann and Briccialdi continued. Representative solos including Bach, B Minor Suite and at least one contemporary sonata or concerto.

OBOE

For Undergraduates

115, 116. **OBOE.** (1:0:½)
 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.

125, 126. **OBOE.** (2:0:1)
 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.

225, 226. OBOE. (2:0:1)

Barrett Studies continued; Sellner, *Etudes* of Oboe, Part II. Studies for intervals, broken chords, and alternate fingerings. Representative solos including at least two pre-classical sonatas. Beginning reed making.

325, 326. OBOE. (2:0:1)

Studies by Barrett and Sellner continued. Representative solos including the Hindemith Sonata.

For Undergraduates and Graduates**425, 426, 435, 436. OBOE. (2:0:1 and 3:0:1)**

Studies by Barrett, Sellner and Andraud. Bassi. Twenty-seven Virtuoso Studies for Oboe. Representative solos including the Goossens Concerto.

CLARINET**For Undergraduates****115, 116. CLARINET. (1:0:½)**

Development of embouchure, breath control, tone production and fingering. Klose, Method, Part I; Lazarus, Method, Part III. Representative solos.

125, 126. CLARINET. (2:0:1)

Lazarus, Method, Part II; Baermann, Book II; Klose, Characteristic Studies. Representative solos.

225, 226. CLARINET. (2:0:1)

Baermann, Book III; Rose, Forty Studies; Langenus, Scale Studies. Representative solos.

325, 326. CLARINET. (2:0:1)

Labanchi Method, Book II; Saint-Saens, Sonata Op. 167; representative solos, including one sonata or concerto.

For Undergraduates and Graduates**425, 426, 435, 436. CLARINET. (2:0:1 and 3:0:1)**

Langenus, Virtuoso Studies and Duets; Jeanlean. Twenty-five Technical and Melodic Studies. Representative solos, including concertos, sonatas and shorter solos.

BASSOON**For Undergraduates****115, 116. BASSOON. (1:0:½)**

Development of embouchure, breath control, attack and production of tone. Representative solos.

125, 126. BASSOON. (2:0:1)

Weissenborn Studies, Book I, Op. 8. Begin Milde, Studies. Alternate fingerings; reed making, exercises in tenor clef. Jancourt, Progressive Sonatas, Book II; representative solos.

225, 226. BASSOON. (2:0:1)

F. Oubradous, Daily scales and Exercises, Books I, II; Weissenborn Studies, Book II. Representative solos.

325, 326. BASSOON. (2:0:1)

Weissenborn Studies, Book II continued; Milde, Concert Studies; A. Giampieri, Sixteen Daily Studies. Representative solos.

For Undergraduates and Graduates**425, 426, 435, 436. BASSOON. (2:0:1 and 3:0:1)**

Weissenborn, Milde, and A. Giampieri Studies continued. Almenrader, Book II. Clef studies. Representative solos.

SAXOPHONE**For Undergraduates****115, 116. SAXOPHONE. (1:0:½)**

Development of embouchure, breath control, tone, and articulation. Cailliet, Method, Books I and II. Representative solos.

125, 126. SAXOPHONE. (2:0:1)

All major and minor scales and arpeggios

in fluent legato and staccato articulations. Vivian Scale Exercises; Brooke Method. Representative solos.

225, 226. SAXOPHONE. (2:0:1)

Brooke Method continued; Eby Method; Bassi-Iasilli, Twenty-seven Virtuoso Studies. Representative solos.

325, 326. SAXOPHONE. (2:0:1)

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**425, 426, 435, 436. TROMBONE. (2:0:1 and 3:0:1)**

Studies by Tyrrell; Mantia, Trombone Virtuoso; Lea Studies for Cello. Study of F trombone. Advanced clef studies. Representative solos, including concertos, sonatas, and shorter solos.

BARITONE**For Undergraduates****115, 116. BARITONE. (1:0:½)**

Development of the embouchure, breathing, attack. All major scales, articulation, arpeggio exercises. Solos from Interscholastic League Solo List Class I.

125, 126. BARITONE. (2:0:1)

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.

225, 226. BARITONE. (2:0:1)

Studies in arpeggios continued, original scale forms, transposition. Representative solos.

325, 326. BARITONE. (2:0:1)

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**425, 426, 435, 436. BARITONE. (2:0:1 and 3:0:1)**

Continuation of all technical studies, clef reading, representative solos, including concertos, sonatas, and shorter solos.

MUSIC LITERATURE**For Undergraduates****131, 132. INTRODUCTION TO MUSIC LITERATURE. (3:3:0)**

Through directed listening, music of various forms and styles is considered. Introduction to music history presented showing relationship of music studied to that preceding and following it. A section for non-music majors is offered each semester.

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). A survey of literature for piano. Class performance and listening.

431-432. HISTORY OF MUSIC. (3:3:0)

Prerequisite: Junior standing. A stylistic and biographical study of the major periods, medieval to modern, through records, scores and bibliography. Performance practices, esthetics, relationships to art, literature and

philosophy, and to social and political history.
4361. MUSIC IN THE GENERAL CULTURE. (3:3:0)

Through directed listening and other channels, the course aims to increase understanding and enjoyment of great musical works in all styles. Major broadcasts and local concerts paralleled when feasible.

MUSIC EDUCATION

For Undergraduates

231. MUSIC FOR CLASSROOM TEACHERS. (3:3:0)

Prerequisite: Sophomore standing. For primary or 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. 247 or equivalent. A detailed study of baton technique, 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. Study of 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. Not open to students having completed Mus. Ed. 232.

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 teach-

ing; evaluation of the individual voice, various vocal exercises, singing styles; student teaching.

4317. CHORAL CONDUCTING. (3:3:0)

Prerequisite: Senior classification in music education. Study and performance of representative choral works of all periods. Participation in a major choral organization required.

4318. INSTRUMENTAL CONDUCTING. (3:3:0)

Prerequisite: Senior classification in music education. Study and performance of instrumental works of all periods. Participation in a major instrumental group required.

For Graduates

530-531. SEMINAR IN MUSIC EDUCATION. (3:3:0)

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 is 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, enunciation. 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. Educ. 328 or equivalent. Emphasis in the organization and development of instrumental groups in the public schools including tone production.

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. A study of material adapted to normal social and musical interests of children. Enrollment limited to graduate students majoring in elementary education.

631-632. MASTER'S THESIS. (6)

THEORY

For Undergraduates

133-134. ELEMENTARY THEORY. (3:3:1)

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)

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

322, 323. FORM AND COMPOSITION. (2:2:0 each)

Prerequisite: Th. 233-234 or equivalent. Study of homophonic forms of musical composition with respect to Viennese Classical style. Analysis of basic principles of phrase construction, two and three-part song forms. Study of the basic form and style of Romantic period music, study of the composition techniques of the impressionistic and contemporary periods with analysis. Performance projects, and application of these styles in original compositions.

333-334. FORM AND COMPOSITION. (3:3:0)

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 9th, 11th, and 13th 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. INSTRUMENTATION. (2:2:0)

Prerequisite: Th. 334 or equivalent. Study of properties of orchestral instruments. Emphasis on devices, techniques, mechanics of orchestral scoring.

4312. PEDAGOGY OF THEORY. (3:3:0)

Prerequisite: Th. 234 or equivalent. Methods in presentation of music theory. Emphasis on problems to be met by public school and private music teachers. Theories of scales, intervals, all types of chords and the inversions, keys, cadences, modulation techniques, harmonization of melodies at sight at keyboard, comprehension of rhythmic, melodic, and harmonic construction of Classical Period examples.

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. 3. MEN'S GLEE CLUB. (1:0:3)

Prerequisite: Audition.

010. SEC. 4. OPERA THEATER. (1:0:5)

Prerequisite: Audition.

010. SEC. 5. TECH SINGERS. (1:0:5)

Prerequisite: Audition.

011. SYMPHONY ORCHESTRA. (1:0:5)

Prerequisite: Audition.

013. SEC. C. STAGE BAND. (1:0:3)

Prerequisite: Audition. 4 semester hours may be substituted for required physical education.

013. SEC. B. SYMPHONIC WINDS. (1:0:2)

Prerequisite: Audition.

013. SEC. C. STAGE BAND. (0:1:3)

Prerequisite: Audition.

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.

MILITARY BAND

Part of Basic ROTC. For particulars inquire of the officer in command.

MUSIC FEES FOR APPLIED MUSIC (PRIVATE)

(See Expenses, General Information
Bulletin)

Department of Physics

Professors:

Mr. Thomas, Head
Mr. Schmidt

Associate Professors:

Mr. Day

Assistant Professors:

Mr. Basford
Mr. Sandlin*

Instructors:

Mr. Clark
Mr. Mires

Teaching Fellows:

Mr. Cole
Mr. Sage

Mr. Merrymon

Mr. Gott

Mr. Phillips
Mr. Severance

Mr. Henson

Mrs. Pereboom
Mr. Smola

The Physics Department offers a course of study leading to the Bachelor of Arts or the Bachelor of Science Degree. In addition the Department cooperates with the Engineering School in offering a four-year program leading to a Bachelor of Science Degree in engineering physics and a five-year program leading to a Bachelor of Arts and a Bachelor of Science in engineering physics.

All majors in this department must include Physics 336 and Physics 435 in their course work.

For those planning to teach physics and other sciences, the following physics courses are required.

- I. With physics teaching major:
Physics 141-142, 235-236, 215-216, plus 12 hours from the following: 331, 336, 337, 338, 341, 423-424, 436.
- II. With a physics teaching minor:
Physics 141-142, 235-236, 215-216, plus 6 hours from the following: 331, 336, 337, 338, 341.
- III. Science option: Students may elect a science teaching option. With the proper selection of courses, this plan can qualify a person for teaching in as many as four fields of science as taught in Texas public schools. The science departments involved in this program are Biology, Chemistry,

Geology, and Physics. Under this plan a student must complete a minimum of 42 hours of science distributed in at least three fields. He must have a minimum of 18 hours in one department and at least 8 semester hours in each other science field included in his program. Of the 42 hours, not more than 24 will be accepted in any single department and not more than 8 in geology for certification purposes.

In addition to completing the above pattern of courses, candidates for degrees other than the Bachelor of Science in Education must meet the usual requirements for those degrees. The groupings of courses available in the Physics Department for students selecting this option are given below. In the departmental sections of Biology and Chemistry the possible groupings within those departments are given.

For a minimum of 8 hrs. ... 141-142

For a minimum of 12 hrs. 141-142, 235-236, 215-216.

For a minimum of 18 hrs. 141-142, 235-236, 215-216, 331.

For a minimum of 24 hrs. 141-142, 235-236, 215-216, plus 9 hours from 331, 336, 337, 338, 435.

For Undergraduates

031. **INTRODUCTORY PHYSICS.** (3:3:0)
Prerequisite: Math. 052 or equivalent. Re-

quired of engineering students whose placement test scores indicate a deficiency in high school physics. Credit for this course may not be used to replace any physics required in the curriculum concerned nor as a normal degree requirement.

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.

215-216. PHYSICAL MEASUREMENTS.

(1:0:3 each)

Must be taken parallel with Phys. 235-236.

235-236. ENGINEERING PHYSICS (3:3:0 each)

Prerequisite: One year of high school or college physics; parallel enrollment in calculus. See Phys. 215-216.

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. Additional time needed for darkroom processing to be arranged. A \$20 fee for materials is required.

312, 313. ATOMIC AND NUCLEAR PHYSICS LABORATORY. (1:0:3 each)

Prerequisite: Parallel enrollment in Phys. 337, 338. Approval of instructor. Credit will be given for either or both semesters.

331. LIGHT. (3:2:3)

Prerequisite: One year of physics and junior standing.

332. HEAT AND THERMODYNAMICS.

(3:3:0)

Prerequisite: One year of physics and calculus.

336. ELECTRICITY AND MAGNETISM.

(3:3:0)

Prerequisite: One year of physics and calculus.

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. ELECTRON TUBES AND APPLICATIONS TO PHYSICAL SCIENCE.

(4:3:3)

Prerequisite: Phys. 336. A general course

in electronics stressing the fundamentals of electron tubes and the application of these tubes in instruments and apparatus that are of primary importance in the physical sciences.

For Undergraduates and Graduates

411-412. PHYSICAL SEMINAR. (1:1:0 each)

Prerequisite: 12 hours of physics and calculus.

415-416. SPECIAL PROJECTS. (1:0:3 each)

Prerequisite: Approval of Head of Department. Individual student study of theoretical or experimental projects in physics under the guidance of a member of the staff. An outline of the proposed project must have been accepted by the Head of the Department before registering in this course.

423-424. ELECTRICAL MEASUREMENTS.

(2:0:6 each)

Prerequisite: 12 hours of physics and calculus.

431. HIGH SCHOOL PHYSICS TEACHING.

(3:3:0)

435. MECHANICS. (3:3:0)

Prerequisite: 12 hours of physics and calculus.

436-437. INDIVIDUAL STUDY IN SPECIFIED FIELDS (3:3:0 or 3:0:9 each)

Prerequisite: Calculus and 18 hours of physics and approval of Department. Individual student study of theoretical or experimental projects under the guidance of a member of the staff. Similar to Phys. 415-416 with more credit. For students with pronounced ability.

For Graduates

531-532. THEORETICAL PHYSICS. (3:3:0 each)

533-534. QUANTUM MECHANICS. (3:3:0 each)

Prerequisite: Differential equations.

535. NUCLEAR PHYSICS. (3:3:0)

Prerequisite: Phys. 337, 338, or equivalent.

536. ADVANCED DYNAMICS. (3:3:0)

Prerequisite: Phys. 531 or consent of instructor.

537. ELECTROMAGNETIC THEORY (3:3:0)

538-539. GEOMETRICAL AND PHYSICAL OPTICS. (3:3:0 each)

Prerequisite: Calculus and Phys. 331.

631-632. MASTER'S THESIS. (6)

Department of Psychology

Professors:

Mr. Kaplan, Head
Miss Cobb

Associate Professors:

Mr. Kuntz
Mr. Melching

Assistant Professors:

Mr. Anderson
Mr. Dauterman

Teaching Fellows:

Mr. Crawford
Mr. Halas

Mr. Barnett
Dr. O'Loughlin M.D.

Mr. McCutchan

Mrs. Attneave
Mr. Pereboom

Mr. Graham
Mr. Harris

The Department of Psychology is designed to meet the interests of three classes of students: (1) majors who want thorough undergraduate training in the area of psychology, (2) majors who wish specialized training in psychology at the graduate level, and (3) non-majors who desire a basic orientation in human behavior as a supplement to their major course.

Undergraduate majors are expected to offer 30 semester hours in psychology. Two specific programs are available to these students:

I. Liberal Arts Program — For students who plan to terminate college education at end of the B.A. degree. Required psychology courses: 130, 230, 332, and 436.

The student may place emphasis in certain areas for his psychology elective subjects; e.g., industrial, social, clinical, etc.

II. Professional Program — For students who anticipate undertaking graduate work in psychology. Required psychology courses: 130, 333, 336, 436, 437, 438, and 4317.

If the student enters upon one program of study but decides later to change to the other, the courses accomplished can be credited as electives in the second program. Psychology majors will be expected to perform at a high academic level. Grades of "D" in psychology courses will not be acceptable for fulfillment of the degree plan.

The general requirements for the

Master of Arts and Doctor of Philosophy Degrees will be found in the Graduate School Bulletin. Applicants for graduate degrees will be expected to have taken at least 12 advanced semester hours at the undergraduate level in psychology. The graduate student may emphasize one of the following areas: general theoretical psychology, physiological and comparative psychology, industrial psychology, child and adolescent psychology, clinical psychology or counseling.

The Department offers two types of masters' programs: (1) experimental general and (2) applied counseling (rehabilitation). In the latter program, the student may obtain a certificate in rehabilitation counseling upon completion of prescribed courses. At the discretion of the Department, the student may accomplish a thesis or non-thesis program. The former includes 24 hours of course work plus a thesis; the latter requires 36 semester hours of course work.

In addition, the Department, in conjunction with the Department of Education, offers a program at the graduate level for students who desire to attain Professional Certification in School Guidance and Counseling. The certification program can be integrated with the M.A. or M.Ed. if carefully planned. For students desiring to obtain a Certificate in School Guidance, the major is in education and the minor is in psychology. For students desiring to obtain a certificate as a school counselor,

the major is psychology and the minor is in education. Students seeking certification should consult the heads of both departments.

Two doctoral programs are offered: (1) experimental general, and (2) counseling. The first program emphasizes research and methodology. The latter places greater stress on application and includes a one-year internship in an approved agency or institution.

The program for the master's and doctoral student is prepared on an individual basis in consultation with departmental advisers.

For Undergraduates

130. INTRODUCTION TO PSYCHOLOGY. (3:3:0)

Introduction to the scientific study of human behavior with special emphasis on problems of life adjustment.

230. GENERAL PSYCHOLOGY. (3:3:0)

A presentation of psychology as a biological science. Suggested as an elective for science and engineering majors and pre-medical students; lectures and demonstrations.

330. PSYCHOLOGY IN BUSINESS AND INDUSTRY. (3:3:0)

Prerequisite: Psy. 130. Basic psychological principles of behavior in the management of personnel.

331. CHILD PSYCHOLOGY. (3:3:0)

Prerequisite: Psy. 130 or 230, or Educ. 232, or Ch.D. & F.R. 131. It is recommended that elementary teacher credential candidates also complete Ch.D. & F.R. 233 prior to registering for this course. Social, mental, and emotional development of children as related to maturation and learning experiences. Primary emphasis on later childhood and adolescence. Specifically oriented to public school certification program.

332. MENTAL HEALTH. (3:3:0)

Prerequisite: Psy. 130, or Educ. 232, or Ch.D. & F.R. 131. Consideration of individual and social factors which contribute to both healthy and unhealthy personalities.

333. STATISTICAL METHODS. (3:3:0)

Prerequisite: Psy. 130, or Educ. 232. Introduction to statistical methods used in evaluating psychological and educational data. Description of data in terms of averages, measures of variability, measures of relationship.

335. ADOLESCENT PSYCHOLOGY. (3:3:0)

Prerequisite: Psy. 130, or Educ. 232, or Ch.D. & F.R. 131. A clinical research approach to social behavior and development in living and learning as related to physical, mental, and emotional growth and adjustment of the adolescent. Guidance emphasis. Specifically oriented to public school certification program.

336. PHYSIOLOGICAL PSYCHOLOGY. (3:3:0)

Prerequisite: Psy. 130 or 230. Recommended: Biol. 134 or equivalent. The relation between certain psychological processes and their underlying anatomy and physiology.

For Undergraduates and Graduates

4229. PSYCHOLOGY OF EXCEPTIONAL CHILDREN. (2:2:0)

Prerequisite: 6 semester hours of psychology, including child psychology. The social and psychological influences of various disabilities upon the individual. The means for

providing emotional and educational support for the exceptional child. Special consideration of individual problems with laboratory opportunity for study of play techniques and test construction. Companion course to Ap.A. 4129; concurrent registration required for credit.

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. 130 or equivalent and upper division classification. The 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, with emphasis upon 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 development. Designed to meet the practical needs of teachers, personnel workers, counselors, clinical psychologists, and others who are interested in the proper guidance of growing personalities.

437. EXPERIMENTAL PSYCHOLOGY. (3:2:3)

Prerequisite: Psy. 130. Recommended: Psy. 333 and 336 completed or taken concurrently. A lecture-laboratory course with the emphasis upon reaction time, emotion, psychophysics, and sensation.

438. EXPERIMENTAL PSYCHOLOGY. (3:2:3)

Prerequisite: Psy. 437 or consent of the instructor. A continuation of Psy. 437 with the emphasis upon perception, learning, motivation, and thinking.

439. INDUSTRIAL PSYCHOLOGY. (3:3:0)

Prerequisite: Psy. 230 or 330. Psychological principles and methods applied to industry.

4311. PSYCHOLOGY OF SOCIAL CHANGE. (3:3:0)

Prerequisite: 6 semester hours in psychology. The psychological aspects of social movements. The role of movements in social change. The role of education in social movements. Social change and cultural patterns.

4312. METHODS IN CLINICAL PSYCHOLOGY. (3:3:0)

Prerequisite: 6 semester hours in psychology. A study of the process of clinical evaluation through the use of interviews and psychological tests; a review of the techniques of the clinical psychologist used in diagnosis and treatments of the mentally ill, mentally defective, and physically handicapped.

4313. COUNSELING PSYCHOLOGY. (3:3:0)

Prerequisite: 6 semester hours of psychology and/or consent of the instructor. A survey of basic principles, techniques, and procedures in counseling. Application of psychological principles to work of youth leaders, librarians, home demonstration agents, nurses, teachers, ministers, and others whose work involves helping people with personal problems. Not a part of the professional counselor training sequence.

4314. THE HUMAN ELEMENT IN ENGINEERING. (3:3:0)

Prerequisite: Psy. 230 or 330. Adaptation of human tasks and working environment to

sensory, perceptual, mental, physical, and other attributes of men.

4316. HISTORY OF PSYCHOLOGY. (3:3:0)
Prerequisite: 6 semester hours of psychology. Recommended: senior standing. The historical background of contemporary scientific psychology.

4317. THE PSYCHOLOGY OF LEARNING. (3:3:0)

Prerequisite: 6 semester hours of psychology. Principles of learning, including conditioning, problem solving, trial and error learning. Theories of behavior. Application to school, business, industrial training settings.

4318. INDUSTRIAL TRAINING. (3:3:0)

Prerequisite: Psy. 330. Principles of teaching and learning; selecting instructional staff; organization and coordination of training functions.

4319. THE NATURE OF INTELLIGENCE. (3:3:0)

Prerequisite: 12 advanced semester hours in psychology. A survey of the various concepts and theories of intelligence from Galton to Thurstone. Analysis of methods employed in well-known tests for implementing the primary mental abilities theory. Special emphasis given to classification of intelligence and concepts of mental deficiency and deterioration.

4321. INTERVIEWING: PRINCIPLES AND PRACTICE. (3:3:0)

Prerequisite: Consent of the instructor. A review of principles. Emphasis upon skill which will apply directly to all interview situations such as industrial, clinical, and vocational counseling. Demonstration, recordings, and discussion. Student participation stressed.

4325. PATHOLOGY OF THE EYE. (3:3:0)

Prerequisite: Consent of the instructor. A study of the anatomy of the eye, diseases and eye conditions resulting in blindness, and methods of physical restoration and prognosis. The consideration of optical aids, and their prescription for persons with deficient vision. The interpretation of ophthalmological reports with special emphasis on the needs of teachers and counselors. The student will have the opportunity to read and write Braille and to acquire teaching skills in the reading and writing of Braille. The fundamentals of foot travel for the blind will also be an optional unit.

For Graduates

5127-5128 SEMINAR. (1:1:0 each)

Prerequisite: 12 advanced hours in psychology. Recommended for all first-year graduate students. Professional aspects of psychology, current development, ethics, etc.

531. INTRODUCTION TO PROJECTIVE TECHNIQUES. (3:3:0)

Prerequisite: Psy. 436. Review of the development of projective techniques. Study and administration of specific projective tests.

532. PROBLEMS IN PSYCHOLOGY. (3)

Prerequisite: 12 advanced semester hours in psychology. Readings and papers in selected fields of psychology. Independent work under the individual guidance of a staff member.

533. ADVANCED DEVELOPMENTAL PSYCHOLOGY. (3:3:0)

Prerequisite: Consent of instructor. Advanced work in the psychological development of children with emphasis on research techniques and studies. Opportunities for observations of normal and exceptional children will be arranged and required.

534. PRACTICUM IN PSYCHOLOGICAL TESTING. (3) Arrange

Prerequisite: Psy. 5314. Instruction and practice in giving intelligence, aptitude, interest and/or personality tests.

536. ADVANCED EXPERIMENTAL PSYCHOLOGY. (3) Arrange

Prerequisite: Psy. 437 or 438 and 5342. An introduction to original research. Independent research will be conducted by each member of the class with progress reports presented and assessed during discussion periods. Course fee, \$3.

537. ADVANCED GENERAL PSYCHOLOGY. (3:3:0)

Prerequisite: Graduate standing. An intensive study of the major areas of psychology with a review of relevant literature. Primarily designed as a first-year graduate leveling course.

538. EXPERIMENTAL DESIGN AND ADVANCED STATISTICAL ANALYSIS. (3:3:0)

Prerequisite: Psy. 437 or 438 and Psy. 5342. Study of logical principles governing sound experimentation; consideration of conventional designs; relation between experimental design and statistical analysis.

539. OCCUPATIONAL INFORMATION. (3:3:0)

Prerequisite: Graduate standing. The sources, techniques of collecting, classifying, and using educational and occupational information necessary in counseling.

5312. PRACTICUM IN OCCUPATIONAL INFORMATION. (3:3:0)

Prerequisite: Psy. 539. Collecting and using occupational information necessary in counseling; special emphasis upon use of The Dictionary of Occupational Titles.

5314. TESTS AND MEASUREMENTS. (3:2:3)

Prerequisite: Psy. 333 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. (3:3:0)

Prerequisite: Graduate standing. Consideration of theories of adjustment counseling. Principal emphasis on client-centered approach to counseling. Attitudes and orientation of the counselor and the counseling relationship, oral discussion, recordings, and role playing. Consideration of special problems in counseling secondary school and college students, physically disabled and the severely mentally ill patient.

5317. TECHNIQUES OF COUNSELING. (3:3:0)

Prerequisite: Psy. 5314. Methods of vocational, educational, and personal counseling approached through case histories, observation, and interviews. Methods of counseling.

5318. PRACTICUM IN TECHNIQUES OF COUNSELING. (3:2:3)

Two sections are offered:

(1) Prerequisite: Psy. 5317. Supervised experience in interviewing, counseling, and preparing case reports.

(2) Prerequisite: Psy. 539, 5314, 5316, and 5317. Course to be taken concurrently with Psy. 5325 and Ap.A. 537. Supervised experience in interviewing, adjustment counseling, vocational counseling, and/or psychological evaluation. Special emphasis on the physically disabled, mentally retarded and severely emotionally disturbed patient.

5319. ADVANCED INDUSTRIAL PSYCHOLOGY. (3:3:0)

Prerequisite: Psy. 439. Emphasis upon ingenuity of approach to the solution of industrial problems; survey of literature; development of methods and techniques.

5321. LEARNING THEORY. (3:3:0)

Prerequisite: Psy. 4317 or equivalent. Spe-

cific consideration of current learning theories including those of Hull, Tolman, Lashley, Spence, Lewin, Hebb, and others.

5322. ADVANCED PHYSIOLOGICAL PSYCHOLOGY. (3:3:0)

Prerequisite: Psy. 336 or equivalent. (open to graduate students in the biological sciences with credit for Psy. 130 or equivalent.) Emphasis upon current trends in psycho-physiological research.

5324. PERSONALITY THEORY. (3:3:0)

Prerequisite: Psy. 436 or 4317. Critical review of current theories of personality including those representing field, psychoanalytic, and specific-trait viewpoints.

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 and sociologists reviewing psycho-

logical components and integrating the two in a rehabilitation framework.

5327. THE PSYCHOLOGY OF DISABILITY. (3:3:0)

Prerequisite: Consent of instructor. Attitudes toward disability and the social and psychological implications of mental and physical disabilities. Special emphasis upon the study of the psychological aspects of blindness.

5331, 5332. INTERNSHIP IN COUNSELING AND GUIDANCE. (3 each)

Prerequisite: Psy. 5317 and 5318. Supervised work in one or more school systems or other approved agencies engaged in professional psychological services.

5342. ADVANCED STATISTICAL METHODS. (3:3:0)

Prerequisite: Psy. 333 or equivalent. The study of statistical inference including probability, small sample theory, chi square, analysis of variance, and non-parametrics.

5343. SURVEY OF SERVICES AND FACILITIES FOR THE BLIND (3:3:0)

Prerequisite: Consent of instructor. The structure and scope of local, state, national, and international organizations and/or agencies (public and private) serving blind persons. A study of federal and state legislation directly affecting blind individuals.

631-632. MASTER'S THESIS. (6)

731-732. DOCTORAL RESEARCH. (6)

831-832. DOCTORAL DISSERTATION. (6)

*Instruction in medical areas will be given by members of the faculty of the University of Texas Post-Graduate School of Medicine in Lubbock.

Department of Speech

Professors:

Mr. Larson, Head

Assistant Professors:

Mr. Landes

Mrs. Mariner

Instructors:

Mr. Brennan

Miss Pendleton

Miss Lindell

Mr. Schulz

Mr. Thompson

(part-time)

Unlimited opportunities are offered the student taking courses or participating in the extra-curricular 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 a professional career as a doctor, lawyer, preacher or teacher. For many it may mean exciting, enjoyable experiences in the 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 Isocrates, Aristotle and Quintilian, the ideal citizen of a free society has been the man or woman, broadly educated and skillful in his ability to express himself. 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.

In addition to the Bachelor of Arts Degree and the Bachelor of Science in Education Degree with a teaching major or minor in speech,

courses are available in the Department leading to comparable Master's Degrees.

SPEECH MAJOR DEGREE REQUIREMENTS

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. Twenty-four to twenty-seven semester hours are distributed among the several areas, thus permitting the student 12-15 hours for specializing in any one area or for gaining greater breadth by distributing them among the areas. All courses marked **, and one of the courses marked * within each group, are required of all speech majors. A choice may also be made between 4351 — History of Speech, and 4352 — History of Theater, one of which is required.

GENERAL SPEECH

**131 Fundamentals of Speech (or equivalent)

**233 Voice and Diction

**331 Speech Mechanism and Phonetics

*237 Oral Interpretation

*435 Interpretative Reading

Additional courses selected from other areas.

PUBLIC ADDRESS

**235 Discussion and Debate

311 Parliamentary Procedure

430 Advanced Public Speaking

432 Senior Projects in Speech

437 Persuasion

438 Advanced Discussion, Debate, and Conference Methods

4351 History of Speech

RADIO-TELEVISION

*238 Introduction to Radio and Television

- *335 Fundamentals of Radio and Television Broadcasting
- 336 Radio Program Production
- 337 Television Program Production
- 432 Senior Projects in Speech
- 436 Radio and Television Program Planning and Management

SPEECH CORRECTION

- 432 Senior Projects in Speech
- 433 Introduction to Hearing Problems
- 434 Principles of Audiometry
- *4318 Introduction to Speech Correction
- *4319 Speech Correction Methods
- 4321 & 4322 Supervised Clinical Practice in Speech Correction

SPEECH EDUCATION

- 432 Senior Projects in Speech
- 439 Methods in Teaching Speech
- 4325 Directing School Speech Activities
- Additional courses selected from other areas.

THEATER

- 211 Stage Makeup
- *231 Introduction to Theater and Cinema
- *232 Principles of Acting
- 319 Theater Activities
- 332 Advanced Acting
- 333 Stagecraft
- 334 Stagecraft
- 3311 American Theater Tour I
- 3312 American Theater Tour II
- 431 Creative Dramatics
- 432 Senior Projects in Speech
- 4311 Stage Directing Methods
- 4352 History of Theater

Persons interested in being certified as speech teachers or speech correctionists may also qualify under the Bachelor of Science in Education Degree program. Advisers in both Speech and Education Departments should be consulted for details.

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 Spch. 338 previously.

211. STAGE MAKEUP. (3:0:3)

A laboratory course in the practice of make-up for the stage. Assigned readings in textbook.

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.

233. 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.

235. DISCUSSION AND DEBATE. (3:3:0)

Study and practice in the essential tools of a democratic society; group problem-solving and methods of inquiry and advocacy.

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)

The origin and development of radio and television; basic structure of the broadcasting industry and its social, political, economic, and cultural significance.

239. SPEECH DEVELOPMENT FOR TEACHER COMPETENCE. (3:3:0)

The development of speech skills necessary for teaching effectiveness are emphasized during the first half of the course. During the second half, methods of using speech materials and methods in the teaching of other subject matter areas are studied. (For education majors only).

311. PARLIAMENTARY PROCEDURE. (1:1:0)

Principles and procedure governing deliberative groups, with practice in their usage.

312. RADIO SPEECH FOR AGRICULTURE AND HOME ECONOMICS. (1:1:1)

Prerequisite: Spch. 131 or 338 or by permission of Head of Department. Includes radio speaking technique, organization of the radio speech directed toward a specific audience; program planning directed toward farm, garden, 4-H, women's clubs, etc. Planning and conducting interviews and discussions.

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. THE SPEECH MECHANISM AND PHONETICS. (3:3:0)

Study of the functioning of the speech mechanism and the principles of phonetics 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: Spch. 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: Spch. 231 or equivalent. Continuation of study of technical problems of play production. Stage lighting, costume design and construction, and stage makeup.

335. FUNDAMENTALS OF RADIO AND TELEVISION BROADCASTING. (3:2:3)

The basic principles and techniques for performance on radio and television. Practical experience under broadcast conditions.

336. RADIO PROGRAM PRODUCTION. (3:2:3)

Prerequisite: Approval of Head of Department. A concentrated and practical course covering the multiple problems faced by the radio director and producer. Opportunity to acquire professional facility and technique in direction and production of radio programs on the campus station, KTTC. Development of creative ingenuity and critical standards is emphasized.

337. TELEVISION PROGRAM PRODUCTION. (3:2:3)

Prerequisite: Approval of Head of Department. 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 conference, discussion, and interviews. For majors in other fields than speech.

3311. AMERICAN THEATER, TOUR I. (3)

Prerequisite: Sophomore classification. A tour of representative American theaters and productions in the eastern part of the United States, to include such examples as: professional resident companies, professional and non-professional summer stock, indigenous theater revival productions, community-little theater, arena theater, showboat, and theatrical activities in New York City.

3312. AMERICAN THEATER TOUR II. (3)

Prerequisite: Sophomore classification. A tour similar to American Theater I, with attention to theatrical activity in the western part of the United States and particularly to the motion picture industry in Hollywood.

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 are given special emphasis.

431. CREATIVE DRAMATICS. (3:3:0)

Studies in the principles and methods of developing original dramatizations with children. (May also be taken for education credit.)

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 are required, in advance of registration, to secure the Department Head's approval of the specific project to be pursued. May be repeated only once for credit.

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 233 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: Approval of Head of Department. Objectives and methods in planning commercial and educational programs for radio and television. Staff organization and administration. Case studies and individual projects.

437. PERSUASION. (3:3:0)

Prerequisite: 6 hours of public speaking and a course in psychology or permission of Head of Department. 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.

438. ADVANCED DISCUSSION DEBATE AND CONFERENCE METHODS. (3:3:0)

Prerequisite: Spch. 235 or 338. 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.

439. METHODS IN TEACHING SPEECH. (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. (May be taken for education credit.)

4311. STAGE DIRECTING METHODS. (3:2:3)

Prerequisite: Junior classification. 18 hours of speech, including Spch. 231 and 232 or equivalent. 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 procedure organization. Student direction of representative plays. (May be taken for education credit.)

4318. INTRODUCTION TO SPEECH CORRECTION. (3:3:0)

Prerequisite: Junior classification and permission of Head of Department. A survey of the speech correction field, with emphasis on classification of speech disorders, etiology, and resulting problems of the field. Observation in speech clinic required. (May be taken for education credit.)

4319. SPEECH CORRECTION METHODS. (3:2:3)

Prerequisite: Junior classification and permission of Head of Department. Treatment of classification of speech disorders, with emphasis on speech, re-training, and the methods in speech therapy. Observation of speech training and audiometric testing in clinic. A limited amount of supervised practice in the speech clinic if it is the student's second course in speech correction. (May be taken for education credit.)

4321-4322. SUPERVISED CLINICAL PRACTICE IN SPEECH CORRECTION. (3 each)

35 laboratory hours per credit hour. Prerequisite: Spch. 4318, concurrent registration

in Spch. 4319, or permission of Head of Department. Required of teachers desiring certificate of approval for speech therapy. (May be taken as Spch. 4221, 4222, and 4223 for 2 credit hours each. May be taken for education credit.)

4325. DIRECTING SCHOOL SPEECH ACTIVITIES. (3:2:3)

Prerequisite: 12 hours of speech or education, and/or teaching experience. Methods and principles involved in extra-curricular 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. (May be taken for education credit.)

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. A study of the origin and history of the theater as a social and aesthetic force.

For Graduates

531. STUDIES AND PROBLEMS IN SPEECH. (3:3:0)

May be repeated for credit.

535. PATHOLOGY OF THE HARD-OF-HEARING. (3:3:0)

Advanced study in the etiology, therapy, and problems of the hard-of-hearing.

536. SPEECH PATHOLOGY. (3:3:0)

Advanced study in the etiology, therapy, and problems of speech disorders, with emphasis on diagnosis. Investigation of current theories and recent experimental work. (May be taken for education credit.)

5353. 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.

631-632. MASTER'S THESIS. (6)

Biblical Literature

LOUIS R. COBBS, Baptist General Convention of Texas;

CECIL RAYMOND MATTHEWS, The Methodist Church;

DAVID M. H. RICHMOND, The Presbyterian Church;

ROBERT M. PLATT, The Disciples of Christ; A. WAYNE HARRIS, The Churches of Christ;

FRANCIS XAVIER FREY, Roman Catholic Church;

GEORGE SALLAWAY, Roman Catholic Church.

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.

131. SURVEY OF THE OLD TESTAMENT. (3:3:0)

A survey of the contents of the Old Testament in relation to the history of the Hebrews and their religious outlook on life.

132. SURVEY OF THE NEW TESTAMENT. (3:3:0)

A survey of the content of the New Testament in relation to its historical background and basic Christian teachings.

211. THE BIBLE, ITS ORIGIN AND GROWTH. (1:1:0)

The origin and growth of the Bible from earliest known manuscripts to the present time.

212. THE PSALMS. (1:1:0)

The origin, significance, and message of the Psalms.

213. BOOK OF JAMES. (1:1:0)

The background, authorship, and occasion for writing the Book of James, with emphasis on its message of practical Christian living.

221. THE BOOK OF JOHN. (2:2:0)

The background, authorship, and occasion for writing the Book of John, with emphasis on interpretation and major teaching.

222. BOOK OF REVELATION. (2:2:0)

The background and interpretations of the Book of Revelation.

223. BOOK OF ROMANS. (2:2:0)

Contents of the Epistle to the Romans, with emphasis on the spiritual and ethical teaching.

224. BOOK OF HEBREWS. (2:2:0)

The background, content, and practical value of the Epistle to the Hebrews.

231. CHURCH HISTORY. (3:3:0)

The history and growth of the Christian Church from its earliest beginning to the present time.

232. CHRISTIAN LEADERSHIP. (3:3:0)

Principles of the development and growth in lay and church careers.

234. GREAT IDEAS OF THE NEW TESTAMENT. (3:3:0)

The major spiritual and ethical themes of the New Testament.

235. THE PROPHETS. (3:3:0)

The Hebrew prophets, their place in history, and their message.

236. THE LIFE AND TEACHINGS OF JESUS. (3:3:0)

The life, teaching and significance of Jesus as revealed in the gospels.

237. THE SPREAD OF CHRISTIANITY. (3:3:0)

The Book of Acts is studied in its harmonic connection with the Epistles. The missionary program and message are traced through the historical records of the New Testament.

434. COMPARATIVE RELIGION. (3:3:0)

Prerequisite: Junior classification. A study of the origin and fruits of the chief world religions (e.g. Primitivism, Hinduism, Buddhism, Confucianism, Islamism, Judaism, Christianity, etc.).

BOARD OF DIRECTORS

WINFIELD D. WATKINS, Chairman, Abilene. Term Expires Feb. 19, 1959
 JAMES L. LINDSEY, Vice Chairman, Midland. Term Expires Feb. 19, 1959
 J. ROY WELLS, Secretary
 PARHAM C. CALLAWAY, Corpus Christi. Term Expires Feb. 19, 1959
 J. EVETTS HALEY, Canyon. Term Expires Feb. 19, 1961
 HAROLD HINN, Plainview. Term Expires Feb. 19, 1963
 TOM LINEBERRY, Kermit. Term Expires Feb. 19, 1961
 DOUGLAS ORME, Big Spring. Term Expires Feb. 19, 1961
 C. I. WALL, Amarillo. Term Expires Feb. 19, 1963
 FLOYD A. WOOLDRIDGE, Dallas. Term Expires Feb. 19, 1963

FACULTY EMERITI

WILLIAM MOORE CRAIG, B.S., M.S., Ph.D., Professor of Chemistry, Emeritus
 ALBERT BENJAMIN CUNNINGHAM, B.A., B.D., M.A., Ph.D. Litt. D., Professor of English
 Emeritus
 CARL HENNINGER, B.A., M.A., Associate Professor of Foreign Languages, Emeritus
 CECIL HORNE, B.A., Professor and Head Department of Journalism, Emeritus
 JOHNNY G. LANGFORD, B.B.A., M.A., Professor of Physical Education, Emeritus
 RUFUS ARTHUR MILLS, B.A., M.A., Professor of English, Emeritus
 EARL L. THOMPSON, B.A., M.A., Ph.D., Professor of Mathematics, Emeritus

FACULTY OF THE SCHOOL OF ARTS
AND SCIENCES

EDWARD NEWLON JONES, B.S., Ph.D., LL.D., President
 121 Administration Building
 GUSTAV ERNST GIESECKE, A. B., M. A., Ph.D., Vice President
 121 Administration Building
 ROBERT CABANISS GOODWIN, B.A., M.A., Ph.D., Dean of Arts and Sciences
 206 Administration Building
 SABE McCLAIN KENNEDY, Jr., B.A., M.A., Ph.D., Assistant Dean of Arts and Sciences
 206 Administration Building
 JOE ALFRED ADAMCIK, Assistant Professor of Chemistry, 1957.
 B.S., M.A., Texas; Ph.D., Illinois
 BEATRICE WITTE ALEXANDER, Instructor in Foreign Languages, 1945.
 B.A., T.S.C.W.; M.A., Texas
 THEODOR WALTER ALEXANDER, Assistant Professor of Foreign Languages, 1947, 1954
 B.S., M.S., Texas Tech
 JAMES GEORGE ALLEN, Professor of English and Dean of Student Life, 1927, 1950
 B.A., S.M.U.; M.A., Harvard
 LOUISE CRAWFORD ALLEN, Associate Professor of Journalism, 1928, 1957
 B.A., S.M.U.; M.A., Missouri
 ROBERT PAUL ANDERSON, Assistant Professor of Psychology, 1955
 M.A., Ph.D., Chicago
 WILLIAM BURNSIDE ARPER, JR., Associate Professor of Geology, 1953, 1956
 B.S., M.S., Oklahoma, Ph.D., Kansas
 CAROLYN ADAMS LEWIS ATTNEAVE, Assistant Professor of Psychology and Child
 Development, 1957
 B.A., Chico State College; M.A., Ph.D., Stanford
 MARGERITE SIVELLS BAILEY, Instructor in Mathematics, 1942
 B.S., Southeastern State (Oklahoma); M.A., Texas
 ALBERT BARNETT, Professor of Education and Professor of Psychology, 1933, 1957
 B.A., M.A., Ph.D., George Peabody
 OLIVER LOYD BASFORD, Assistant Professor of Physics, 1956
 B.A., M.A., Texas
 LOWELL LAWRENCE BLAISDELL, Assistant Professor of History, 1957
 B.A., Elmhurst College; M.A., Rochester; Ph.D., Wisconsin

- ELSIE BODEMANN, Associate Professor of Biology, 1958
A.B., Southwest Texas State Teachers; M.A., Ph.D., Texas
- ELAINE EMESETTE BONEY, Assistant Professor of Foreign Languages, 1955, 1958
A.B., Kansas; M.A., Wisconsin; Ph.D., Texas
- PAULINE MILLSPAUGH BOWERS, Instructor in Sociology, 1957
B.A., Texas Tech; M.S.W., Tulane
- LAWRENCE EDWARD BOWLING, Associate Professor of English, 1952, 1957
B.A., Berea; M.A., Vanderbilt; Ph.D., Iowa
- JAMES WARREN BOWMAN, Part-time Instructor in Government, 1956
B.A., Texas Tech; LL.B., Texas
- NANCY SMITH BOZE, Instructor in English, 1958
B.S., M.A., East Texas State
- JOHN ROSS BRADFORD, Professor of Chemical Engineering and Dean of Engineering
1943, 1955
B.S. in Ch.E., M.S. in Ch.E., Texas Tech; Ph.D., Case Institute of Technology;
Reg. Prof. Engr., (Ohio, Texas)
- JOHN PAUL BRAND, Professor of Geology, 1948, 1957
B.A., M.A., Miami (Ohio); Ph.D., Texas
- JAMES BRENNAN, Instructor in Speech, 1956
B.A., M.A., Texas
- DERL LEN BROOKS, Instructor in Biology, 1958
B.S., Texas Tech
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B.A., M.A., Texas Tech
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B.S., M.A., Michigan
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B.A., M.A., Texas Tech; D. Litt. San Marcos University (Lima, Peru)
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B.A., Texas Tech
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B.S., Texas Tech; M.S., New Mexico; Ph.D., Iowa
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B.A., Ph.D., Yale
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B.A., East Central State (Oklahoma); M.E., Texas Tech
- MARY SUE CARLOCK, Assistant Professor of English, 1952
B.A., S.M.U.; M.A., Texas; Ph.D., Columbia University
- ILA MAE CARPENTER, Instructor in Mathematics, 1956
B.S., East Texas State; M.S., Texas Tech
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B.A., Dickinson; M.A., Chicago
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B.S., M.S., Texas Tech
- CHARLES EDWARD CLARKE, Instructor in Geology, 1956
B.S., Texas Tech
- LEONARD DALE CLARK, Instructor in Physics, 1958
B.A., M.A., Texas A&I
- ALDRENA BEATRIX COBB, Professor of Psychology, 1958
B.S., West Texas State College; M.S., North Texas State College; Ph.D., Texas
- JOHN WILLIAM COBB, Jr., Associate Professor of Health, Physical Education and Recreation,
1958
B.S., University of Corpus Christi; M.E., Texas Tech
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1955, 1956 B. A., M.A., Ph.D., Texas
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B.S., North Texas State; M.A., Texas; Ph.D., Cincinnati
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B.A., Texas; M.Ed., Texas Tech
- RUTH EVANS COWART, Instructor in Government, 1957
B.A., M.A., Texas Tech
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A.B., Southwestern; M.A., Ph.D., Texas
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B.S., M.S., Texas Tech
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B.S., William & Mary; M.A., Ed.D., Columbia
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B.A., Texas; M.A., Texas Tech
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A.B., M.A., Stanford

- RAYMOND LEON DAVIDSON, Associate Professor of Education, 1949, 1955
A.B., Clarendon College; M.A., Texas Tech; Ed. D., Texas
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B.S., Texas
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B.A., Texas A&M.; M.A., Ph.D., Texas
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B.A., Hardin-Simmons; M.A., Texas
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B.S., M.M., Oberlin Conservatory of Music
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A.B., Ohio; A.M., Chicago
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B.A., Austin College; M.A., Ph.D., Texas
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B.Sc., University of London; M.A., Ph.D., Columbia
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A.B., Michigan State Normal College; M.A., Ph.D. Michigan
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B.A., Colorado; M.A., Ph.D., Wisconsin
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B.A., M.A., Texas
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B.S., Florida State; M.S., Texas Tech
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B.A., Texas; M.A., Chicago; Ph.D., Texas
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B.S.E., Arkansas State Teachers College; M.A., University of Arkansas
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B.M., M.S., Kansas
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B.A., Texas Tech
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A.D., Hillsdale; M.A., Columbia
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B.S., St. Vincent; M.S., Pennsylvania State; Ph.D., Notre Dame
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B.S., Eastern Kentucky State; M.A., George Peabody
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B.A., Daniel Baker; M.Ed., Texas Tech; Ed.D., Colorado
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B.S. in Physical Education, Tennessee
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Litt.D., Univ. of Milan; M.A., Bryn Mawr College; Ph.D., Virginia
- GORDON FULLER, Professor of Mathematics, 1950
B.A., West Texas State; M.A., Ph.D., Michigan
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B.S., M.A., Oklahoma; Ph.D., Texas
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B.A., M.A., Oklahoma
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B.S. in Ed., M.S. in Ed., D.Ed., Texas Tech
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B.S., M.S., Idaho
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B.A., M.A., Ph.D., Texas
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B.A., M.A., T.C.U.; Ph.D., Texas
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B.S., M.S., Texas Tech; Ph.D., University of California
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A.B., Wofford; A.M., Ph.D., Duke
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B.S., M.S., Texas Tech
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B.S., West Texas State; M.A., Ph.D., Cornell
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Freshman Mathematics, 1928, 1947
B.A., M.A., Wisconsin
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B.S., Texas Tech
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B.A., M.A., Ph.D., Texas
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B.A., Stanford; M.A., Radcliffe
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B.S., M.A., T.S.C.W.
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B.A., Colorado; M.Sc.Ed., Western Illinois; Ph.D., Texas Tech
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B.S., Ph.D., Virginia
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B.A., M.A., Texas; Ph.D., Arizona
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B.A., Texas Tech; LL.B., Georgetown University
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B.S., Mississippi A&M
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B.A., M.A., Baylor; Ph.D., Texas
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B.S., Texas Tech
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B.A., Louisiana State; Ph.D., Oxford
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B.A., M.A., Texas; Ph.D., Stanford
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B.A., Ph.D., Harvard
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B.A., San Diego State; M.A., California

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B.A., M.A., Texas Tech; Ph.D., Colorado
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B.S., Texas Tech
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B.S., Emporia State Teachers College; M.M., S.M.U.
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B.A., M.A., Oklahoma; Ph.D., Iowa
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B.A., Texas; A.M., Harvard
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B.S., M.S., Illinois; Pe.D., Indiana
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Sc.B., Ohio State; M.A., Ph.D., Columbia
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B.S., M.S., Fort Hays K.S.C.; Ph.D., Purdue
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B.A., A.C.C.; M.A., T.C.U.
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B.M., M.M., Florida State
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B.A., M.A., Washington; Ph.D., Illinois
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B.S., M.S., Purdue; Ph.D., Michigan
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B.S., Northwestern; M.A., Nebraska; Ph.D., Michigan
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B.S., M.S., Kansas State; Ph.D., Northwestern
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B.Mus., M.Mus., Northwestern
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B. of Arch., Texas Tech
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B.S., Texas; Ph.D., Ohio State
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B.A., Texas Tech; LL.B. Texas
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B.F.A., Oklahoma; M.A., Texas Tech
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B.A., Washburn; M.A., Wisconsin
- IVAN LEE LITTLE, Associate Professor of Education and Philosophy, 1946, 1953
B.A., Texas Tech; M.A., Ph.D., Nebraska
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B.S., M.S., North Texas State; Ed.D., Stanford
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B.A., T.C.U.; M.A., Texas
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B.A., Ph.D., Yale
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B.A., Des Moines; M.A., Iowa
- RICHARD BENJAMIN MATTOX, Professor of Geology, 1954, 1957
B.A., M.S., Miami (Ohio); Ph.D., Iowa
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B.A., Alabama; M.A., Texas
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B.S., B.M., M.M., Illinois
- JOSEPH THOMAS McCULLEN, JR., Professor of English, 1949, 1955
B.A., M.A., Ph.D., North Carolina
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B.A., B.S., Ph.D., Texas
- LILLIAN ETTA McGLOTHLIN, Instructor in Mathematics, 1947
B.A., M.A., Texas
- SETH SHEPARD McKAY, Professor of History, 1928
B.A., M.A., Texas; Ph.D., Pennsylvania
- JAMES FABER McNALLY, Instructor in Health, Physical Education and Recreation, 1952
1957
B.S., Oklahoma; M.Ed., Texas Tech
- CLINTON M. McPHERSON, Instructor in Chemistry, 1956
B.S., M.Ed., Texas Tech

- GEORGE PEYTON MECHAM, Professor of Education, 1951,
B.S., North Texas State; M.A., Columbia; Ph.D., George Peabody
- WILLIAM HOWARD MELCHING, Associate Professor and Assistant Head Department of
Psychology, 1954, 1957
A.B., Indiana; M.A., Ph.D., U.C.L.A.
- WILLIAM WALTER MERRYMON, Professor of Physics, 1948, 1957
B.A., Missouri; M.A., Illinois; Ph.D., Chicago
- MARIE AGNES MILES, Assistant Professor of English, 1946, 1955
B.A., West Texas State; M.A., Texas
- WILLIAM DONALD MILLER, Instructor in Geology, 1958
B.A., Texas Tech
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B.S., Texas Tech
- R. A. MORELAND, JR., Instructor in Mathematics, 1953, 1955
B.S., M.S., Texas Tech
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B.S., West Texas State; M.A., Texas
- DONALD VAN DALE MURPHY, Associate Professor of English, 1926, 1935
B.A., Tulsa; M.A., Columbia
- CHARLES ERNEST MYRES, Instructor in Government, 1956
B.A., Rice; M.A., North Texas State
- KLINE ALLEN NALL, Associate Professor of English and Chairman of
Freshman English, 1944, 1956
B.A., M.A., Texas Tech; Ph.D., Texas
- AARON GUSTAF OBERG, Professor of Chemical Engineering, 1936, 1949
B.S., M.S., Ph.D., Colorado
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B.S., M.A., Ph.D., Kansas
- WILLIAM EUGENE ODEN, Associate Professor of Government, 1948, 1957
B.A., M.A., Oklahoma; Ph.D., Indiana
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M.D., Georgetown Medical School
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B.A., M.A., Texas Tech
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Anthropology and Sociology, 1938, 1955
B.A., S.M.U.; M.A., Texas Tech; Ph.D., Texas
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B.A., T.C.U.; M.A., Iowa
- ANDREW CLINTON PEREBOOM, Assistant Professor of Psychology, 1956
B.A., M.A., Ph.D., U.C.L.A.
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A.B., M.A., Ph.D., Indiana
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B.S., T.S.C.W.
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B.S. in Ed. Texas Tech; M.Ed. in P.Ed., Texas
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B.S., Hamilton; M.A., Northwestern
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B.Mus., B.S., Colorado State
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B.S., Nebraska State College; M.Ed., Texas Tech
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B.S. in T.E., M.S., Texas Tech
- PAUL VERDAYNE PRIOR, Assistant Professor of Biology, 1956
B.A., M.S., Ph.D., Iowa
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A.B., A.M., Ph.D., Missouri
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B.A., M.A., Ph.D., Texas
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B.S., George Peabody; M.A., Columbia
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B.S., M.S., Oklahoma
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B.A., Colorado
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Licencie en Sciences Chimiques, Universite Paul Pastur, Belgium
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B.A., T.C.U.; M.A., Michigan; Ph.D., Kentucky
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B.S., Arizona
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B.S., M.S., Texas Tech
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B.A., Cornell College; M.A., Ph.D., Illinois
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B.A., M.A., Ph.D., Texas
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B.S., M.S., Vermont
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- OLIVE BOONE WHEELER, Assistant Professor of Education, 1953, 1956
A.B., Howard Payne; M.A., T.C.U.; Ed.D., Texas Tech
- BILLY JOE WHITTED, Instructor in Journalism, 1956, 1957
B.J., M.J., Texas
- DEWEY O. WILEY, Professor of Music and Director of Bands, 1934, 1941
B.Mus., Hardin-Simmons; D.Mus., Southwestern Conservatory of Fine Arts
- CARL HAMMEL WILLINGHAM, Assistant Professor of Mathematics, 1955, 1957
B.A., M.A., Texas Tech
- CLARICE DECHENT WILLS, Visiting Associate Professor of Education, 1958
A.B., San Francisco State; M.A., Ed.D., Stanford
- CHARLES EDWARD WILSON, SR., Part-time Instructor in Chemistry, 1957
A.B., Missouri
- JOHN WILLIAM WOOD, Instructor in Geology, 1954, 1955
B.S., Mississippi State; M.S., Texas Tech
- HORACE EUGENE WOODWARD, JR., Associate Professor of Mathematics, 1937, 1956
B.A., M.A., Texas Tech
- GEORGE ARTHUR YOUNG, Instructor in English, 1958
B.A., Texas Tech; B.D., Austin Seminary; M.A., Texas
- VERA BERG YOUNG, Part-time Instructor in Mathematics, 1952
B.S., M.S., Iowa State

Biblical Literature

- LOUIS R. COBBS, A. B., B.D., Th.M., Biblical Literature, under auspices of the Baptist General Convention of Texas
- FRANCIS XAVIER FREY, B.A., Biblical Literature, under auspices of the Roman Catholic Church (Amarillo Diocese)
- WAYNE HARRIS, B.A., M.A., Biblical Literature, under auspices of Churches of Christ
- CECIL RAYMOND MATTHEWS, B.A., B.D., Biblical Literature, under auspices of Northwest Texas Conference of the Methodist Church
- ROBERT M. PLATT, A.B., B.D., Biblical Literature, under auspices of the Christian Churches, (Disciples of Christ)
- DAVID MILES HUME RICHMOND, A.B., B.D., Biblical Literature, under auspices of the Presbyterian Church
- GEORGE H. SALLAWAY, A.B., S.T.B. S.T.L., Biblical Literature, under auspices of the Roman Catholic Church (Amarillo Diocese)

Teaching Fellows

- BETTY JOE BALLARD, B.A., Chemistry
- JOHN LA RUE BEAR, B.A., M.A.B., Chemistry
- SHIRLEY NEDRA BENTON, B.A., English
- JIMMIE WATSON BRASCH, B.S., Chemistry
- BILLY RAY BRUNSON, B.A., M.A., History
- GLENDA ANN CALVERT, B.A., Mathematics
- THOMAS PAIGE CARRUTH, B.S., M.Ed., Education
- JESSE CLARDY, B.S., M.S., History
- JAMES JEROME COLE, B.S., Physics
- BILLY MAX CRAWFORD, B.A., M.A., Psychology
- THOMAS ANTHONY CULLINAN, B.S., Geology
- DON AVERY DUENKEL, B.S., Chemistry
- JOHN ED EKELUND, B.S., Mathematics
- BLAKLEY L. FARGASON, B.S., Mathematics
- MAXINE FORD FOREMAN, B.A., M.A., English
- JOHNNY EDWIN GEORGE, B.S., Biology
- JOSEPH F. GORDON, A.B., B.S., M.A., History
- ROBERT BRUCE GRAHAM, B.A., Psychology
- BENNIE RAY GUNN, B.S., Chemical Engineering
- EDWARD STEVEN HALAS, B.S., M.A., Psychology
- LEE THEODORE HANNAH, B.S., Chemistry
- MELVIN LOUIS HARPER, B.S., Geology
- CHARLES STANLEY HARRIS, B.S., M.A., Psychology
- ARVELLA BARRICK HEFLEY, B.A., English
- JESSIE LEE HILLMAN, B.S., Biology
- DONALD FINIS JORDAN, B.S., Mathematics
- FRANK KALANA, B.A., Biology
- LEE HENRY KENNEDY, B.A., Mathematics
- JOSEPH CLEMENT KIEFFER, B.S., Chemistry
- JERRY EUGENE LESTER, B.S., Mathematics
- RAY NEIL LEWIS, B.S., Chemistry
- TRUMAN ORVILLE LEWIS, B.S., Mathematics
- JOHN CONGER MCGRAW, B.A. M.A., History
- JOHN EDMUND MORLAN, B.S., M.E., Education
- JEAN DECILLE NEAL, JR., B.S., Chemistry
- LYLE EDWIN NESBITT, B.S., M.S., Chemistry
- MARGARET JANE PEREBOOM, B.A., Physics
- WILLIAM TAYLOR PROBANDT, B.S., Geology
- CELIA RUTH PRUITT, B.S., Biology
- ROBERT ALAN ROOKER, B.A., Government
- FREDERIC HEBARD SAGE III, B.S., Physics
- ELISABETH ANNE SANDERS, B.A., M.A., English
- HERBERT H. SCHULZE, JR., B.A., M.A., Education
- JOHN BRYSON SEWELL, B.S., M.S., Chemistry
- FRIEDRICH MARIA SMOLA, Ph.D. Physics
- ROBERT L. SNELL, B.S., M.S., Chemistry
- PETER GORDON SNOW, B.A., Government
- EVERETT PAUL STEWART, B.S., Chemistry
- RUTH TAYLOR TODASCO, B.A., English
- VERDELL JAMES TURNER, B.S., Mathematics
- RALPH EVERETT VARVEL, B.A., M.A., English
- JANET WEBSTER WALL, B.A., English
- HSING-YONG WANG, B.S., Mathematics
- BARNEY EDWARD WHEELER, B.S., Chemistry
- RICHARD SUTTON WELLS, B.A., Government
- VESTAL LIARLY YEATS, B.S., Geology

Faculty Members On Leave From Academic Duties 1958-59

KENNETH WALDRON DAVIS, English
JONATHAN W. LINDSAY, Mathematics
EDWIN KEITH LONGPRE, Biology
JAMES ARTHUR RUSHING, English

BILLY JOE SANDLIN, Physics
ROBERT BOYNTON TAYLOR, Music
POLLY IMOGENE TILTON, Biology

Staff in Office of the Dean of Arts and Sciences

KATHRYN STALLINGS DURHAM
NANCY INGRAM LONGLEY

HELEN TURBEVILLE THOMPSON*

*Resigned January 1, 1959