

**Undergraduate Catalog**  
Vol. LXVI No. 3 June 1983

## DIRECTORY FOR CORRESPONDENCE

### For more information about:

Applications, admissions, catalog  
(undergraduate)

Architecture

Athletics

Business Administration

Engineering

Financial aid

Financial matters

Graduate School

Liberal Arts

Military Science

Musical Organizations

Nursing

Residence hall reservations

Scholarships

Science

Seminars (non-credit)

Social Organizations

Social Work

Student Employment

Student Health

Student Publications

Shorthorn Newspaper

Teacher education

Testing, Counseling

Transcripts

Urban Studies

### Write to: (Box No.)

Director of Admissions (19088-A)

Dean of Architecture and  
Environmental Design (19108)

Director of Athletics (19079)

Dean of Business Administration  
(19377)

Dean of Engineering (19019)

Director of Financial Aid (19199)

Business Office (19136)

Dean of Graduate School (19167)

Dean of Liberal Arts (19617)

Professor of Military Science (19005)

Chairman, Music Department (19105)

Dean of Nursing (19407)

Director of Housing (19388)

Director of Financial Aid (19199)

Dean of Science (19047)

Office of Continuing Education (19197)

Student Activities Office (19348)

Dean of Social Work (19589)

Director of Financial Aid (19199)

Health Center (19329)

Faculty Advisor (19038)

Director, Center for  
Professional Teacher Education  
(19227)

Director of Counseling, Testing,  
Career Placement (19156)

Registrar (19088)

Director of Institute of Urban Studies  
(19588)

The University postal Zip Code is 76019.

**Several offices on campus offer specific services (advising, counseling, dropping or adding courses, interpreting regulations, student activities, etc.). Refer to the Student Services directory on Page 30 to determine which office can assist.**

**The University of Texas at Arlington reserves the right to withdraw courses at any time, change fees, rules, calendar, curriculum, degree programs, degree requirements, graduation procedures, and any other requirement affecting students. Changes will become effective whenever the proper authorities so determine and will apply to both prospective students and those already enrolled. The provisions of this catalog do not constitute a contract, express or implied, between any applicant, student, or faculty member and The University of Texas at Arlington or The University of Texas System.**



# **The University of Texas at Arlington**

## **Undergraduate Catalog 1983-1984**

**VOLUME LXVI**

**NO. 3**

**JUNE 1983**

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# Campus Calendar

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## FALL SEMESTER, 1983

Aug. 24, 25, 26	Regular registration for Fall Semester
Aug. 29	First day of classes
Aug. 29	Late registration begins
Sept. 1	Late registration closes
Sept. 5	Labor Day (holiday)
Sept. 12	Census date
Oct. 7	End of six weeks drop period
Oct. 20	Midsemester
Nov. 18	Last date for undergraduates to drop courses
Nov. 24-27	Thanksgiving holidays
Nov. 28-Dec. 1, 5, 6	Advance registration for Spring Semester
Dec. 9	Last day of classes
Dec. 12	Final examinations begin
Dec. 16	Final examinations end
Dec. 17	Graduation Recognition Exercises

## SPRING SEMESTER, 1984

Jan. 11, 12	Regular registration for Spring Semester
Jan. 16	First day of classes
Jan. 16	Late registration begins
Jan. 17	Late registration closes
Jan. 30	Census date
Feb. 24	End of six weeks drop period
March 8	Midsemester
March 19-25	Spring vacation
April 13	Last date for undergraduates to drop courses
April 20-22	Easter Holidays
April 23-26, 30 & May 1	Advance registration for Fall Semester
May 2	Last day of classes
May 5	Final examinations begin
May 10	Final examinations end
May 19	Graduation Recognition Exercises

## SUMMER SESSIONS, 1984

May 31, June 1	Registration for first Summer Session
June 4	First day of classes
June 5	Late registration closes
June 7	Census date
June 18	End of first drop period, first five-week session
June 26	End of first drop period, 11-week session
July 2	Last date for undergraduates to drop, first five-week session
July 4	Independence Day (holiday)
July 11, 12	Final examinations, first five-week session
July 13	Registration for second five-week session
July 16	First day of classes, second five-week session
July 17	Late registration closes
July 19	Census date
July 30	End of first drop period, second five-week session
July 31	Last date for undergraduates to drop, 11-week session
Aug. 13	Last date for undergraduates to drop, second five-week session
Aug. 16 & 20	Final examinations for 11-week session
	Second five-week classes meet
Aug. 21, 22	Final examinations, second five-week session
Aug. 24	Semester ends







# Introduction

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## LOCATION AND HISTORY

Located in the heart of the Dallas/Fort Worth metroplex, one of the fastest growing areas in the nation, The University of Texas at Arlington reflects that growth on a modern, 342-acre campus a few blocks from downtown Arlington. In addition to campus activity, the area provides a full range of interests including museums, concerts, ballet, theater, family amusement parks, and professional baseball and football. But when UTA was founded in 1895 as Arlington College, a private liberal arts institution, its founders located it "far from the temptations of city life."

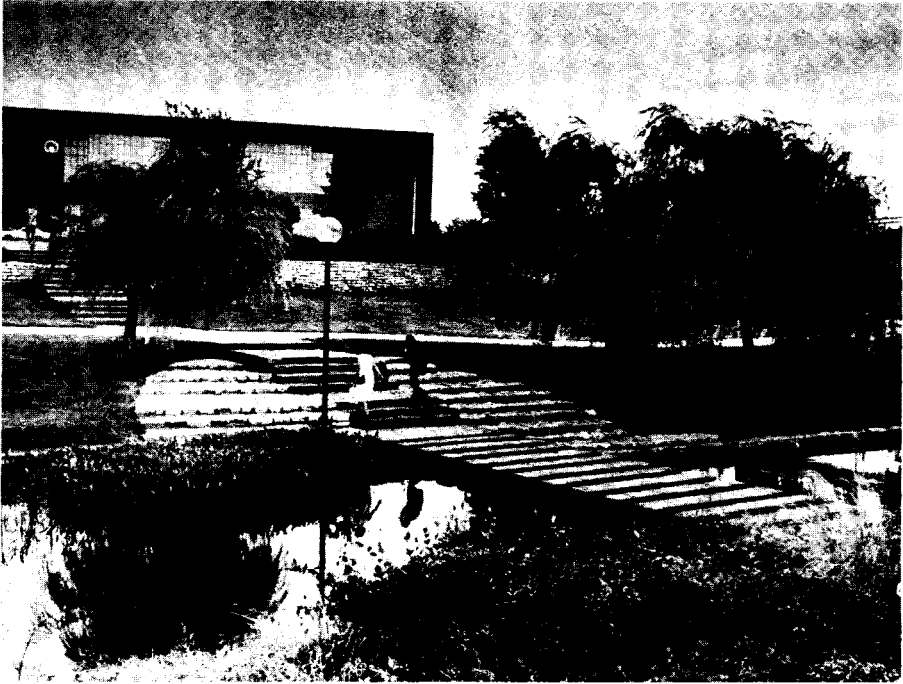
The school changed with the times and its surroundings, undergoing a succession of names and ownerships until 1917 when it became a state-supported junior college, named Grubbs Vocational College, in the Texas A&M System. It was renamed North Texas Junior Agricultural College in 1923 and Arlington State College in 1949. It was a successful junior college in many ways, building a reputation as a fine engineering and agricultural school and sending two football teams to the Junior Rose Bowl.

In 1959, it was elevated to senior college rank, and, in 1965, was transferred to The University of Texas System. The final name change came in 1967, when it became The University of Texas at Arlington.

## GENERAL INFORMATION

### ACCREDITATION

UTA is fully accredited by the Southern Association of Colleges and Schools and the Association of Texas Colleges and Universities. In addition, many of the academic departments and schools have received national accreditation from specific agencies.



### GOVERNMENT

The government of UTA is vested in a nine-member Board of Regents of The University of Texas System, selected from different portions of the state, nominated by the Governor, and approved by the Senate. The Chancellor is the chief administrative officer of The University of Texas System; his office is located in Austin. The chief administrative officer for the operations of UTA is the University President, under the authority of the Chancellor of the UT System and the Board of Regents. A complete statement of the authority and duties of the Regents and of the several officers, together with an account of the organization of the system, is published in the **Rules and Regulations of the Board of Regents of The University of Texas System**.

### EQUAL OPPORTUNITY POLICY

In accordance with the **Equal Pay Act of 1963**, Titles VI and VII of the **Civil Rights Act of 1964**, **Executive Order 11246**, the **Age Discrimination in Employment Act of 1967**, Title IX of the **Educational Amendments of 1972**, Sections 503 and 504 of the **Rehabilitation Act of 1973**, the **Vietnam Era Veterans Readjustment Act of 1974**, and the **Rules and Regulations of the Board of Regents of The University of Texas System**, it is the policy of The University of Texas at Arlington that no person shall, on the basis of race, color, national origin, religion, age, sex, handicap, or Vietnam veteran status be denied employment or admission, be excluded from participation in, be denied the benefits of, or be subject to discrimination under, any program or activity which it sponsors or conducts. Any inquiries concerning the application of this policy should be directed to the University's Affirmative Action officer.

# Academic Organization and Degree Offerings

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The University of Texas at Arlington is organized into these units: **College of Business Administration, College of Engineering, College of Liberal Arts, College of Science, School of Architecture and Environmental Design, Graduate School, School of Nursing, Graduate School of Social Work, Institute of Urban Studies, and Center for Professional Teacher Education.**

The University offers baccalaureate degrees in the following areas:

## **ARCHITECTURE AND ENVIRONMENTAL DESIGN**

1. Architecture (includes option in urban design and planning)
2. Interior Design
3. Landscape Architecture

## **BUSINESS ADMINISTRATION**

1. Accounting
2. Business Administration (includes options in finance, management, management science, marketing, economics, real estate, and systems analysis)
3. Economics

## **ENGINEERING**

1. Aerospace Engineering
2. Civil Engineering
3. Computer Science and Engineering
4. Electrical Engineering
5. Industrial Engineering
6. Mechanical Engineering

## **LIBERAL ARTS**

1. Anthropology
2. Art
3. Communication (Drama, Journalism, Radio-Television, Speech)
4. English
5. Foreign Languages (French, German, Russian, Spanish)
6. General Studies
7. History
8. Music
9. Philosophy
10. Physical Education
11. Political Science
12. Social Work
13. Sociology

## **NURSING**

1. Nursing

## **COURSE OFFERINGS**

### **SCIENCE**

1. Biology
2. Biochemistry (jointly with The University of Texas Health Science Center at Dallas)
3. Chemistry
4. Geology
5. General Studies
6. Mathematics
7. Medical Technology
8. Microbiology
9. Physics
10. Psychology

### **URBAN STUDIES**

1. Criminal Justice

## **Other Course Offerings**

### **PROFESSIONAL TEACHER EDUCATION**

The Center for Professional Teacher Education offers programs for persons interested in pursuing certification as elementary, all-level, or secondary teachers. Students successfully completing prescribed programs are recommended by the Center for Professional Teacher Education to the Texas Education Agency for official certification.

Elementary certification, a 30-semester-hour double major program, is available for students also majoring in one of the following academic areas: chemistry, drama, economics, English, French, geology, German, history, mathematics, physical education, physics, Russian, Spanish, Spanish/bilingual education, and speech. Reading is also available as an elementary specialization.

All-level certification programs are available to students majoring in art, music, speech-drama, and physical education.

Secondary certification is available to students in 28 academic areas: art, biology, chemistry, computer information systems, drama, earth science, economics, English, French, German, health education, history, journalism, life-earth science middle school, mathematics, music, physical education, physical science, physics, political science, psychology, reading, Russian, science, social science, sociology, Spanish, and speech. With the exception of art, music, science, and social science, all secondary certification students must have two 24-hour teaching fields.

Endorsements to regular Texas Teacher Certificates are available in bilingual education, English as a second language, kindergarten (for elementary and all-level teachers), and driver education.

### **MILITARY SCIENCE, RELIGION, URBAN AFFAIRS**

A minor is offered in military science. Religion courses are offered as electives, taught through the Bible centers of various denominations. Urban Affairs courses are offered as electives through the Urban Affairs Program in the Institute of Urban Studies.

### **TRANSFER PROGRAMS**

The course offerings of the University are sufficient in the following fields for a student to complete the first two or three years of study toward a baccalaureate degree. The student must transfer to another institution to complete the study. Information about the programs may be obtained from the Department of Biology.

#### **Two-year transfer programs**

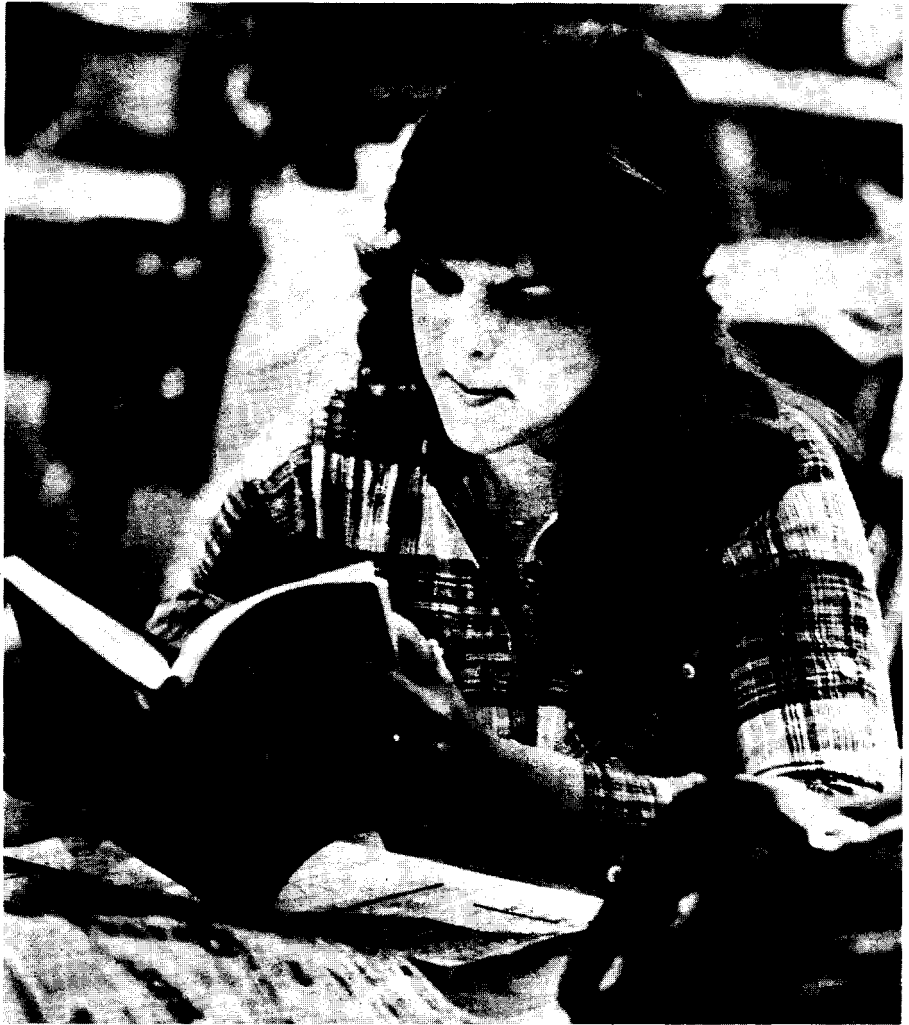
1. Pre-Dietetics
2. Pre-Health Care Sciences (physician's assistant)
3. Pre-Occupational Therapy
4. Pre-Pharmacy
5. Pre-Rehabilitation Science
6. Pre-Veterinary Medicine

**Three-year transfer programs**

1. Pre-Medical Records Administration
2. Pre-Physical Therapy

**CONTINUING EDUCATION**

The University through its Office of Continuing Education offers programs designed primarily for adults who are interested in continuing their education but who do not desire to enroll in formal degree programs. These programs are non-credit and are offered under a variety of formats such as one- or two-day seminars, one- to three-week concentrated short courses, and the more usual evening courses scheduled once a week for 8-15 weeks. They are primarily professionally-oriented, state-of-the-arts programs for the purpose of offering adults in the region an opportunity to update and to broaden their educational experience. Registration fees for all participants are determined by the cost of the programs.





## **The University Art Gallery**

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The University Art Gallery, located in the Fine Arts Building, serves the entire University through a program of exhibitions, public lectures, films, workshops, and special events. Exhibitions draw on all cultures and all periods. Cooperation is continual with neighboring colleges and universities, as well as with the Amon Carter Museum of Western Art, the Dallas Museum of Fine Arts, the Fort Worth Art Museum, and the Kimbell Art Museum.

# The Library

The University of Texas at Arlington Library, housed in a seven-story building in the center of the campus, contains a rapidly-growing collection of more than 750,000 books, journals, documents, and technical reports. In addition, the Library subscribes to more than 3,000 periodicals and newspapers and maintains a collection of recorded tapes, motion pictures, film strips, and slides. Books are on open shelves and are arranged by subject to facilitate research and browsing. Seating is provided for more than 1,700 students, including 1,000 at individual study tables.

Each of the public service departments — Humanities and General, Science and Engineering, Business and Social Science, Reader's Services, Government Publications, and the Divisions of Special Collections and Archives — is staffed with professional librarians and experienced assistants.

The Minority Cultures Collection, on the sixth floor, is a circulating and reference collection of library materials covering the political, social, cultural, economic, and intellectual history of three minority groups in the southwestern United States — American Indians, Blacks, and Mexican Americans — from U.S. Independence to the present with emphasis on 20th century problems and progress.

The Jenkins Garrett Library of Texana and Western American History provides special research opportunities in the Library's Division of Special Collections. The collection is particularly strong in the periods of the Republic of Texas and the United States-Mexican War. The Cartographic History Library, on the sixth floor, specializes in the discovery and exploration of North America, with special emphasis on Texas and the American West. It consists of hundreds of rare maps and atlases dating from 1493, coupled with an extensive collection of related reference works and a representative sampling of the primary works on exploration and discovery. The Robertson Colony Papers is an extensive collection of original 19th century manuscripts documenting the history of one of Texas' largest and most important colonizing efforts.

The holdings of the Division of Archives and Manuscripts are particularly strong on organized labor in Texas, Texas political history, the Mexican State of Yucatan, the Central American nation of Honduras, and the history of The University of Texas at Arlington.

A branch library in the School of Architecture and Environmental Design, in the Fine Arts Building, contains books, periodicals, vertical file data, and reference materials on architecture, city planning, building systems, and areas related to architecture and environmental design. The reference collection provides standard reference materials, and specialized architectural materials such as standards, surveys, and architectural directories. An innovation at the S.A.E.D. Library is an online catalog which provides access to the University Library holdings by author, title, call number, and subject. A professional Librarian and experienced assistants are available to instruct users and provide specialized reference service.

As a special service the Library provides on-line access to computerized information retrieval. This system makes possible almost instant computerized searching of more than 100 data bases of indexes and abstracts in the areas of science, social science, business, and technology. Other Library services include photocopy machines on each floor, coin-operated electric typewriters on the fifth floor, and a photoduplication center.

## Main Library Hours\*

### Fall and Spring

Monday-Thursday	7:00 a.m.-11:45 p.m.
Friday	7:00 a.m.-10:00 p.m.
Saturday	10:00 a.m.-10:00 p.m.
Sunday	1:00 p.m.-11:00 p.m.

### Summer

Monday-Thursday	7:00 a.m.-11:00 p.m.
Friday	7:00 a.m.-10:00 p.m.
Saturday	10:00 a.m.- 6:00 p.m.
Sunday	2:00 p.m.-10:00 p.m.

\*Except the sixth floor (Special Collections, Archives, and MCC) which closes at 5:00 p.m. Monday-Friday, at 2:00 p.m. Saturday, and is closed Sunday.

# Undergraduate Admission

**NOTICE: Due to conditions which may arise beyond the control of The University of Texas at Arlington, statements in this bulletin may be changed during the next year without notice. The University reserves the right to modify any statement in accordance with unforeseen conditions.**

## ENTERING FRESHMEN

An applicant for admission, to be accepted by The University of Texas at Arlington, must (1) have graduated from an accredited high school with at least 15 acceptable high school units, including the subjects prescribed under high school units in this section, and (2) have achieved a level of performance on the Scholastic Aptitude Test of the College Entrance Examination Board in accordance with the applicant's standing in his/her high school graduating class.

In addition, the applicant must be at least 15 years of age, be physically able to perform the duties of a student, be free of contagious or infectious diseases, and be of good moral character.

Each applicant must submit an application for admission, a high school transcript, and the score on the Scholastic Aptitude Test (SAT) or the American College Test (ACT).

(1) The application for admission may be obtained from the Admissions Office. It must be completed in full, signed, and returned to the Director of Admissions. It should arrive prior to the receipt of any of the other admission credentials.

(2) The high school transcript, final and official copy, should be sent to the Director of Admissions. Freshmen wishing to attend the summer term immediately after graduation from high school should send a high school transcript during their final semester. They must then submit a supplemental transcript upon graduation.

(3) An acceptable score on the Scholastic Aptitude Test (SAT) or the American College Test (ACT), as specified below, is required for admission. The SAT total (sum of verbal and mathematical portions) score requirements and the ACT composite score requirements are:

<b>Rank in High School Graduating Class</b>	<b>Minimum Acceptable SAT Scores *</b>	<b>Minimum Acceptable ACT Score *</b>
<b>First (highest) quarter</b>	<b>No minimum, but score must be submitted</b>	<b>No minimum, but score must be submitted</b>
<b>Second quarter</b>	<b>700</b>	<b>15</b>
<b>Third quarter</b>	<b>800</b>	<b>19</b>
<b>Fourth quarter</b>	<b>1000</b>	<b>24</b>

\*The College of Engineering requires first or second quarter applicants to have SAT scores of 800 or ACT score of 19; third quarter SAT scores of 900 or ACT score of 22; fourth quarter SAT scores of 1000 or ACT score of 24.

(4) Each new student is required to submit a Report of Medical History with proof of immunizations required by law, signed by a physician. A physical examination is required only if the student is medically unfit for physical education activity courses. Immunizations required by state law are indicated on the form. It is the responsibility of the student to complete the health form, have immunizations verified by a physician, and mail the form to the Student Health Center at least two weeks prior to registration; otherwise, registration may be delayed. A Report of Medical History form will be sent to a student when he/she is accepted for admission.

The applicant who submits credentials 30 days before registration follows an earlier registration schedule than later applicants.

**No application for admission for the Fall or Spring Semester will be accepted once regular registration commences.**

## HIGH SCHOOL UNITS

To be eligible for admission to the University, a student must be a graduate of an accredited high school and have a minimum of 15 units. In determining the acceptability of the units, the Director of Admissions considers the quality of the student's work as reflected by grades. For purposes of



admission to the University, the General Educational Development Test is not considered as the equivalent of graduation from an accredited high school. Minimum requirements are:

<b>English</b>	<b>3 units</b>
<b>Algebra (not to include "Pre" or "Introductory" course)</b>	<b>2 units</b>
or	
<b>Algebra and geometry</b>	<b>1 unit</b>
<b>Social Science</b>	<b>1 unit</b>
<b>Science</b>	<b>2 units</b>
<b>Electives</b>	<b>1 unit</b>
	<b>7 units</b>
<b>TOTAL</b>	<hr/> <b>15 units</b>

In order for majors in architecture, engineering, biology, biochemistry, chemistry, mathematics, and physics, and BS candidates in geology and psychology to start their mathematics sequence with analytic geometry, applicants should have 3 1/2 units of high school mathematics and/or those who made low scores on the mathematics part of the SAT or the ACT examination are required to take, without credit toward a degree, the necessary mathematics courses prerequisite to taking analytic geometry.

Students planning to major in accounting, economics, finance, medical technology, management, marketing, nursing, pre-physical therapy, real estate, sociology or systems analysis and students planning to earn the BA degree in psychology should have two units of algebra among their high school credits in order to proceed normally in their chosen curricula.

Students planning to seek certification in elementary education or to major in art, English, foreign languages, history, journalism, music, philosophy, physical education, political science, or speech-drama may proceed normally in their curricula with either two units of high school algebra or one unit of algebra and one unit of geometry.

Students planning to earn a BA in geology should have two units of algebra and one unit of geometry among their high school credits.

**ENTRANCE EXAMINATION**

Freshman applicants for admission must take the Scholastic Aptitude Test (SAT) or the American College Test (ACT). The SAT is given nationally in October, November, December, January, April, May, and June. Test applications and a sample test bulletin can be obtained from the Educational Testing Service, Box 592, Princeton, N.J. 08541. The ACT is given nationally in October, December, February, March, and June. Test applications and a sample test bulletin can be obtained from American College Testing Program, P.O. Box 168, Iowa City, Iowa 52243. Test applications can also be obtained from a local high school or from the Director of Counseling, Testing, and Career Placement at UTA. Applications will not be accepted later than one month prior to the test date. The applicant should complete one of the examinations at least three months prior to the start of the semester for which admission is sought.

**EARLY ADMISSION PROGRAM**

The Early Admission Program is designed for high school seniors who wish to gain college credit at UTA, while still attending high school. A student wishing to apply for the Early Admission Program must submit an application for admission, SAT scores or ACT score, a high school transcript reflecting grades through the junior year and an Early Admission application. To be admitted to this program, a student must meet the admission requirements for freshmen, except for high school graduation. If the student continues at UTA after high school graduation, a final transcript must be submitted to the Admissions Office.

A personal interview with the Director of Admissions is recommended to insure that the student enrolls for course work that he/she is qualified to complete. Procedures and policies of UTA are explained to the student at that time. Each individual accepted into this program will be enrolled in regular University classes and will receive credit for the course work completed at the end of the semester. A permanent academic record will be established for each person enrolled under the Early Admission Program.

## **ADMISSION**

### **PROVISIONAL ADMISSION PROGRAM**

Applicants for admission **who have never attended college** but have graduated from high school and who meet all requirements for admission except for an acceptable SAT score or an acceptable ACT score may be admitted for the Summer Session or the Spring Semester under the Provisional Admission Program. Students will not be admitted on this basis for the Fall Semester. By completing the following requirements during the Summer Session or the Spring Semester, a student may be admitted as a regular student for the next session.

(1) Must attend an orientation program on campus prior to registration. The purpose of this program is to advise the student of general University courses, course load, course scheduling, and pre-registration. In addition, each provisional admission student will be required to attend prescribed study sessions based on academic load.

(2) Must take a minimum of nine semester hours to include three hours in English, three in mathematics, and three from either natural science or foreign language. The maximum number of hours may not exceed 14.

(3) Must not fail any course taken and must achieve a grade point average of 2.0 during the first semester enrolled in order to continue at UTA as a regular student. However, if a minimum of 1.5 average is achieved and no course is failed, then the student will be allowed to continue for one additional semester to attempt to achieve a cumulative grade point average of 2.0.

(4) Must enroll as an undeclared major until the provisional admission requirements have been met.

### **APPLICANTS 25 YEARS OF AGE**

Men and women who are 25 years of age or older who have graduated from an accredited high school may be considered for permission to enter the University without taking the Scholastic Aptitude Test (SAT) or the American College Test (ACT). The Director of Admissions has the authority to waive the entrance examinations for applicants 25 years of age who can indicate that they are prepared to profit by the studies they wish to take. However, a person entering under this provision will be required to enroll as an undeclared major until 30 semester hours have been successfully completed. An application for admission and a high school transcript will be required for admission. Any applicant who has not graduated from high school will be required to take the SAT or the ACT and apply under the provisions of the individual approval clause. An applicant who has attended a college previously must meet the University requirements of a 2.0 (C) average for all college work attempted. The General Educational Development Test is not recognized by UTA as being equivalent to graduation from an accredited high school.

### **INDIVIDUAL APPROVAL**

Men and women over 21 years of age and veterans with 12 consecutive months of active duty who cannot satisfy all admission requirements and who have not attended college previously may be permitted to enter the University upon submitting evidence that they are prepared to profit by the studies they desire to take. An applicant for individual approval must submit an application for admission, transcript of high school work completed, and acceptable Scholastic Aptitude Test (SAT) scores or acceptable American College Test (ACT) score. An applicant should arrange for a conference with the Director of Admissions at least 30 days prior to registration. A person entering under this provision will be required to enroll as an undeclared major until 30 semester hours have been successfully completed.

### **INTERNATIONAL STUDENTS**

All international students (non-immigrants who have not been granted permanent residency in the United States) must submit a special application form and official educational documents. The application form and admission information can be obtained from the Admissions Office, Room 123, Davis Hall.

Admission is based upon these requirements:

1. A foreign admissions evaluation charge of US\$25 is required from all international students before any action is taken on the admission file.
2. Results of the Scholastic Aptitude Test (SAT) must be submitted by all international students applying to UTA. Students are required to score at least 350 on the Verbal portion and at least 350 on the Math portion of the SAT. Applicants to the College of Engineering are required to score at least 450 on the Math portion of the SAT. An applicant for re-admission may also be required to submit these scores.

3. Admission to the first year of the University is based on graduation from a secondary school in a system composed of at least 12 years. Applicants who have received certificates showing that they qualify for matriculation at UTA with above average performance on the appropriate entrance exams may be considered for admission to freshman standing.
4. Students who have completed academic work beyond the secondary level in another country must submit all the requirements mentioned for freshmen as well as official post-secondary transcripts, diplomas, and certificates reflecting above average performance.
5. Proof of financial support for one year must be submitted to the satisfaction of the international student admissions officer.
6. A minimum of a 2.5 grade-point average is required for transfer applicants from U.S. colleges. (All grades including repeated grades are used to calculate the average.)
7. International student applications and all supporting documents should be in the Admissions Office 90 days prior to registration.
8. All international students on non-immigrant visas must agree to have health insurance coverage each semester that they are enrolled at UTA.
9. All international students, including those transferring from other schools, must attend an international student orientation before their first registration.

### **DECLARATION OF MAJOR**

A student who wishes to explore various fields before deciding on a particular major may be designated as an undeclared major. Students admitted under the provisions of individual approval, provisional admission program, or applicants 25 years of age must enroll as undeclared majors until the requirements outlined for their admission have been met. An undeclared student obtains academic advising from the dean's office of the College of Liberal Arts.

If a student has chosen the college or school but is undecided about the department in which he/she wishes to enroll, he/she should confer with the dean's office of that division. Many colleges and schools have provisions for such students to enroll as undecided majors.

### **FRESHMEN ORIENTATION AND REGISTRATION PROGRAMS**

Summer Freshmen Orientation and Registration Programs are held during July and August for beginning freshmen entering UTA in the Fall Semester. These programs provide opportunities for freshmen to become acquainted with University procedures and regulations, to meet with advisors and discuss proposed educational plans, and to complete registration.

A freshman is scheduled to attend a specific program when he/she has completed all entrance requirements and an entrance notice has been issued. A brochure, the date a student is scheduled to attend, and an entrance notice will be mailed to each freshman granted admittance to UTA.

Freshmen attending the summer programs are registered for the Fall Semester. Registration includes completing registration forms, meeting with a University advisor, completing fall schedule of classes, reserving places in the classes selected, and payment of tuition and fees.



## **ADMISSION**

# **COLLEGE TRANSFERS**

### **FRESHMAN TRANSFERS**

An applicant who has attended another college and has attempted fewer than 30 semester hours (excluding courses with a grade of W) must have a 2.0 (C) college grade average as computed by the UTA Admission Office and, in addition, must meet the admission requirements for entering freshmen for UTA. A completed application for admission, high school transcript, college transcript, and the Scholastic Aptitude Test (SAT) or the American College Test (ACT) should be submitted 30 days prior to registration. The official transcript must state that the student has been honorably dismissed. A student who is not entitled to continue at another institution will not be admitted.

**No application for admission to the Fall or Spring Semesters will be accepted once regular registration commences.**

### **OTHER TRANSFERS**

An applicant who has attended another college and attempted 30 or more semester hours (excluding courses with grades of W) must have a 2.0 (C) college grade average as computed by the UTA Admissions Office. A completed application and an official transcript from each college attended must be submitted to the Director of Admissions prior to registration. The official transcript must state that the student has been honorably dismissed. A student who has received an Associate in Science degree or a bachelor's degree from an accredited college will normally be accepted for admission. The applicant who submits the required credentials for admission 30 days prior to registration follows an earlier registration schedule than that followed by later applicants. A student who is not entitled to continue at another institution will not be admitted.

**No application for admission to the Fall or Spring Semesters will be accepted once regular registration commences.**

### **TRANSFER OF CREDIT**

Credit for courses that have been earned at another accredited college or university with a grade of C or better may be transferred to UTA. Courses completed with a grade of D will not be accepted in transfer. Credits are transferred in terms of UTA course numbers. Courses which do not correspond to one of UTA's numbered courses but which are transferable for credit will be listed in the appropriate subject area showing hour value and course title. A maximum of 72 semester hours, plus four hours of physical education or military science, may be transferred from a community college. That amount of credits cannot be applied to all degree programs due to particular curriculum requirements.

The student's major department advisor will determine the amount of transfer credit that will apply toward a particular degree. Courses transfer to UTA on the same level and with the corresponding number of hours and grades as earned at the previous college. Grades are not changed on transfer work. For admission purposes a student's transfer grade point average is determined by dividing the total number of grade points earned by the number of semester hours for which a grade other than withdrawn passing is received. After admission has been granted, grade points are computed only on work completed at UTA.

In general, a student should take courses which are on the same level as those at UTA. It is not possible to transfer a course offered on the freshman or sophomore level at another college as the equivalent of a junior-level course.

### **EVALUATION OF CREDITS**

An evaluation of transfer credits is made by the Admissions Office after the applicant has completed an application for admission and has submitted an official transcript from each college attended. A copy of the transcript evaluation will be sent to the student and a copy will be sent to the student's major department. The original evaluation will remain on file in the Registrar's Office.

UTA students who have been concurrently enrolled at another school or who have completed course work at another school during the Summer Session should request that the course work be added to their transfer credits. The following procedure will minimize delay:

- a. Bring an official transcript which shows the course credit and grade to the Admissions Office, Davis Hall Room 123.
- b. Write "Continuing Student" on the transcript.

**TRANSIENT SUMMER STUDENT**

A student who has attended another college and plans to register for the Summer Session only may be admitted as a summer transient student. A student must submit a completed application for admission which includes a statement verifying good standing at the previous college. During registration, students should have in their possession transcripts or other acceptable documentation showing successful completion of prerequisites to the course in which they are enrolling. Such students may register for the long session by meeting all the admission requirements and submitting all credentials required for a beginning transfer student.

**FORMER STUDENT**

A former student is one who has been enrolled at UTA at any time other than the immediate preceding long semester.

The application for readmission must be completely filled out, signed, and filed with the Director of Admissions. If the former student has attended another college or university since last enrollment at UTA he/she must submit an official transcript with the application for readmission to the Director of Admissions. A student's grade performance at another college or university will be considered in the re-admission decision.

The former student who submits the required certificates 30 days before registration follows an earlier registration schedule than that followed by later applicants. Readmission applicants cannot be admitted without required credentials.

**No application for readmission for the Fall or Spring Semesters may be accepted once registration commences.**

**COLLEGE CREDIT BY EXAMINATION**

UTA awards undergraduate credit on the basis of several nationally administered examinations and local advanced standing examinations administered by academic departments on campus. The nationally administered examinations recognized by the University, which many of the academic departments use to award credit, are: (1) Advanced Placement Examinations of the College Entrance Examination Board (CEEB), and (2) College Level Examination Program (CLEP) of the CEEB. Official score reports for those nationally administered examinations should be sent to the Counseling, Testing and Career Placement Office, UTA, Arlington, Texas 76019.

Only those students who have the equivalent in knowledge or training of a subject's content should apply for a locally administered advanced standing examination. The admission file should be complete for a new student before an advanced standing examination is taken. Request forms for advanced standing examinations may be obtained from the Counseling, Testing and Career Placement Office, Room 216 Davis Hall. A non-refundable fee of \$5 is charged for most advanced standing examinations with the fee payable when the application for the test is approved. A fee of \$20 is charged for a foreign language examination, because the student will be tested for up to four semesters of credit.

A student may gain credit by examination for any number of semester hours subject to the following procedures and limitations:

(1) Credit earned by examination at this University or elsewhere may not be used to reduce the general degree requirements for the completion of (a) 30 semester hours in residence, (b) at least 24 of the last 30 semester hours in residence, and (c) at least 18 semester hours in residence of advanced course work (courses numbered 3000 and 4000), to include 12 hours of advanced course work in the major subject.

(2) Grades or grade points will not be computed for college credit obtained by examination.

(3) The individual academic departments will establish their own standards for awarding credit by examination. Certain departments may choose not to award credit based on each type of examination if the tests do not meet their specific needs. Credit for a satisfactory score will be granted only when a nationally administered examination covers substantially different content from a course for which the student is seeking or has received academic credit.

(4) Credit by examination will not be awarded in any course for which the student has previously received a grade, either in this University or elsewhere.

## **ADMISSION**

(5) Credit by examination will be posted to a student's official record after he/she has enrolled and completed one semester at this University.

(6) State statutes require that a student graduating from a state institution must complete at least three semester hours of credit in American history and three semester hours of credit in American government by classroom instruction. Therefore, only three hours of the American history requirement and three hours of the American government requirement can be earned by examination.

### **Credit for Freshman English**

A student who has a high proficiency in English composition may write a paper and receive three semester hours in English 1301 if the paper is approved for credit. It is recommended that a student have a score of 600 or better on the verbal part of the Scholastic Aptitude Test (SAT) before applying for the examination. A student may contact the Counseling, Testing, and Career Placement Office on campus to make arrangements for the examination.

A student who has a score of 650 or better on the verbal part of the SAT and who gains credit for English 1301 may apply for an advanced standing examination in English 1302 by contacting the Counseling, Testing and Career Placement Office. A fee of \$5 will be charged for this examination.

## **PLACEMENT EXAMINATIONS**

Certain departments offer (or require of) the student exemption from taking courses based on departmental placement examinations. Such exemption does not grant credit for the course but permits the student to enroll in the next course in the subject area.

### **Chemistry Placement Examination**

Entering students who have credit for one or more years of high school chemistry, and who intend to major in engineering or in any other field for which CHEM 1302 (but not CHEM 1301) is required, must take the chemistry placement examination if they wish to by-pass CHEM 1301.

### **Foreign Language Placement Examination**

Students who have high school credit for a foreign language or equivalent knowledge may take the foreign language placement examination prior to registering for a course in the language.



# Student Health Service

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The Student Health Service is staffed and equipped to care for most routine health needs of students. Its financial support is from a portion of the student service fee, supplemented by reimbursement from the student patient for such costs as medicine, x-rays, and laboratory tests.

**Staffing** — The staff includes full-time physicians and nurses, registered pharmacist, clinical psychologist, laboratory technologists, and related personnel.

The Student Health Service provides medical services for the student body during those times when the University is open. Services are not available during scheduled University holidays, and during this period, medical care received by the student from another source will be his or her financial responsibility. Hours of operation are posted at the entrance.

**Services** — Students eligible for medical care are entitled to medical services of staff physicians, nursing services, routine laboratory services, diagnostic x-ray studies ordered by staff physicians, consultation on matters related to health and illness, psychological counseling, and health advice and immunization certificates for traveling students.

Before being examined or treated for routine illness, the student must complete a Report of Medical History.

Services not currently available are obstetrical care, dental care, specialized diagnostic services, and specialty care beyond the scope of Health Service staff. The Health Service will decline to treat those conditions which are beyond its capacity to treat efficiently and competently. Referral advice will be given in such cases.

**Transportation** — Each student is responsible for transportation to the Health Center. If an ill student cannot get to the center, an ambulance should be called.

**Health Records** — Prior to registration, a student will submit a Report of Medical History with proof of immunizations. A physical examination is required only if the student is medically unfit for such activities as physical education. Confidentiality of medical records will be in accordance with The Family Educational Rights and Privacy Act of 1974.

**Indebtedness** — It is the student's responsibility to satisfy indebtedness to the Health Service with reasonable promptness. Upon payment, receipts will be issued which can be used by the student for submitting claims on personal insurance policies.

**Education** — In the spirit of this educational community, it is hoped that students will use the Health Service as a resource for information on health and illness.

## STUDENT HEALTH INSURANCE

Because the Student Health Service is not able to meet all medical care needs, particularly the more extensive diagnostic and inpatient services of a general hospital, students are strongly urged to consider subscribing to an appropriate medical insurance program.

For information concerning the current student health and accident insurance, contact the Student Affairs Office, Room 252 Davis Hall.

International undergraduate students are required to purchase The University of Texas at Arlington Student Health Insurance Plan or show proof of owning equal or better insurance coverage than that provided by the UTA plan. International students will be expected to show proof of the insurance coverage at the time of each registration or to purchase insurance coverage at that time.

# Registration

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## REGISTRATION SYSTEM

Registration at the University is required for each semester that a student attends. The Registrar's Office publishes a Schedule of Classes that includes the location and times for registration and will list courses to be offered for the next semester.

Registration is not complete until the student has had a course of study approved and has paid the assessed fees. Students not paying fees on the scheduled day of registration must resection all courses during late registration. A late registration fee is charged. An audit of fees will be performed as of the Census Date. Students who have overpaid will receive refunds and students who have underpaid will be billed for additional fees. Payment is due immediately upon receipt of this bill.

Names as they appear on birth records must be given on all registration forms.

**A student enrolled in undergraduate school taking 12 or more semester hours during a Fall or Spring Semester is considered to be a full-time student.**

## CLASS SCHEDULES

Trial schedules which follow approved degree programs should be planned prior to registration. Each student must consult an advisor either prior to or at the time of registration. The advisor assists the student in preparing a course of study for the semester. All students are advised to balance their programs over a five-day week. Working students are urged to consult their advisors about how to establish a reasonable ratio between academic load and work hours.

## SCHOOL HOURS — FALL AND SPRING

Classes during the Fall and Spring Semesters are scheduled from 8 a.m. to 10 p.m. There is no separate evening school.

## SUMMER DAY

The summer sessions during the day hours are divided into two terms of approximately five weeks. A three-semester-hour lecture course is scheduled for two hours daily Monday through Thursday. Without permission from the academic dean, the maximum load a student may take during a day summer term is a total of seven credit hours.

## ELEVEN-WEEK SUMMER SESSION

Evening classes in the summer are scheduled for one term of 11 weeks. Some day classes may be scheduled for a term of 11 weeks. A three-semester-hour lecture course is scheduled for two hours twice weekly.

## AUDITING

Arrangements to audit an undergraduate course may be made during the late registration period only. The required application form, obtained in the Registrar's Office, must be completed and taken to the instructor for approval. After obtaining the instructor's approval, the applicant pays a fee at the Bursar's Office of \$5 per course if enrolled for course work at UTA or \$25 per course if not enrolled for course work in residence at this University. Persons 65 years of age or older may audit courses without paying an audit fee. The auditor has the privilege of hearing and observing only; no University credit is granted for auditing.

## COURSE CHANGE

The student should see the department in which a course is offered to initiate any drops, adds, or section changes. Under special circumstances, a department may require a student to change sections. A student will not be permitted to add a course for credit or make a section change after the last day of late registration. When adding a course, the student must take the add form from the department to the Bursar's Office (add cashier) on the same day for fee payment. The regular registration fee receipt should also be presented.

To change a major course of study, a student should file an application in the Student Administration Section of the Registrar's Office before arranging a class schedule.



**COURSE IDENTIFICATION SYSTEM**

Courses at UTA are designated by a combination of letters and numbers. The letters indicate the department, or the area within a department, that offers the course. A list of these code letters is given inside the back cover. The numbers furnish information such as level, credit, and hours of theory or practice. The course shown below will serve as an example for the explanation following.

**CHEM 1351 (2-3) 3 hours credit**

1. "CHEM" indicates that the course is offered by the Chemistry Department.
2. The first digit (1 in the example above) denotes the year in which the course is usually taken; 1 and 2 indicate freshman and sophomore courses, 3 and 4 indicate advanced undergraduate courses, and 5 and 6 indicate graduate courses.
3. The second digit (3) denotes the semester hours credit of the course.
4. The third and fourth digits (5 and 1) distinguish the individual course. Course numbers 90 through 99 indicate individual or small group instruction.
5. The first figure in parentheses indicates the clock hours per week in the spring and fall semesters devoted to theory. Theory includes recitations and lectures.
6. The second figure in parentheses indicates the clock hours per week in the spring and fall semesters devoted to practice. Practice includes work done in the laboratory, shop, drawing room, or field.
7. The final figure is the credit value of the course. The unit of credit is the "semester hour," which involves one hour of theory and/or from two to four hours of practice per week for one semester of 16 weeks.

**NAME AND ADDRESS CHANGE**

If a student, after registration, changes name or home or Arlington address, he/she is expected to notify the Registrar in writing at once. He/she will be held responsible for a communication from the University offices sent to the address last given and may not claim indulgence on the plea of having changed lodgings or name and therefore of not having received the communication.

**MAJOR CHANGE**

An undergraduate change of major may be initiated in the Student Administration Section of the Registrar's Office during a semester or in regular registration at a designated table. The Change of Major form must be approved by the proposed major department and returned to the point of issue.

**PHYSICAL EDUCATION REQUIREMENT**

All students must complete four semesters of required physical education. This requirement may be satisfied by completing either the one-credit-hour courses or the two-credit-hour courses or by a combination of the two. In either case, a single course, regardless of credit value, will satisfy only one semester of the requirement. The following are exceptions to the four-semester requirement:

1. A student will be exempt from one semester of required physical education for each semester of basic military science completed or for each Fall Semester of marching band completed.
2. A student 21 years old or older at time of first entrance in college will be exempt from required physical education.
3. Upon reaching the age of 25, a student will be considered as having fulfilled his/her requirements for physical education.
4. A student who presents adequate documentation of service will be exempt from one year of required physical education for each six months of active duty in the armed forces of the United States.
5. A student may be excused from required physical education at the discretion of the academic dean when unusual or extraordinary circumstances exist.
6. A student desiring to be excused for reasons of physical disability should initiate such a request with the chief of staff, Student Health Services.
7. A student may receive credit for no more than two physical education activity courses taken concurrently.
8. Physical education activity courses may be used only to satisfy degree plan requirements for such courses. They may not be used for elective credit nor as substitutes for any other required

## REGISTRATION

courses, and grades in activity courses other than those required for the degree will not be used in determining official grade point averages.

**NOTE: Only four semesters of required physical education activity courses may be counted for graduation. Additional activity courses taken will not be calculated in the student's grade point average.**

## CONCURRENT ENROLLMENT

**University of Texas System Institutions** — A student concurrently enrolling at more than one of the three University of Texas North Texas components (UTA, UT Dallas, and UT Health Science Center at Dallas) may register and pay tuition and fees for all courses through the student's home campus. Detailed procedures may be obtained from the Registrar of the student's home campus. The concurrent enrollment agreement and waiver of specified fees applies only to students following the concurrent enrollment procedures specified by the Registrar of the home campus.

The charges for the following will be assessed and collected at the home institution for the other institution:

1. Tuition at an appropriate rate;
2. Applicable laboratory fees; and
3. General fees at the rate of \$6 per semester credit hour for courses taken at UTA.

Student services at the second institution will be made available to concurrently enrolled students paying the appropriate student service fees at the second institution.

The three institutions have a reciprocal agreement for honoring parking permits. Details may be obtained from the police office of the home campus.

Concurrently enrolled students should report any problems concerning registration, payment of fees, or other matters related to concurrent enrollment procedures to the Registrar of the home institution.

**Other Public Institutions of Higher Education** — When a student registers at more than one public institution of higher education in Texas, tuition is determined in the following manner.

(1) The student shall pay the full tuition charges to the first institution at which he is registered.

(2) If the minimum tuition at the first institution is the *same* or *greater* than the UTA minimum, the amount charged for tuition will be the hourly rate, i.e., \$4 per hour for residents and \$40 per hour for non-residents.

(3) If the minimum tuition at the first institution is *lower* than the UTA minimum, the amount charged for tuition will be the difference in the minimum charges, but in no case will the amount charged for tuition be less than the UTA hourly rate.

All other applicable fees will be charged. Students desiring to take advantage of the concurrent enrollment plan should bring a copy of the fee receipt from the other institution when registering at UTA.

## TELEVISED INSTRUCTION

The University of Texas at Arlington is a member of a consortium of colleges and universities in the North Texas area called the Association for Higher Education (AHE). UTA utilizes a closed-circuit television network operated by AHE to transmit and to receive a limited number of graduate and undergraduate courses. Currently UTA transmits engineering and computer science courses to selected industrial sites and business locations in the Dallas/Fort Worth area and to the campuses of certain members of AHE. Selected courses not offered by UTA but which are offered by neighboring colleges and universities via the AHE network can be received.

For further information or for a bulletin of courses available via the AHE closed-circuit television network (formerly TAGER), write the UTA Instructional Television Office, Room 204 Engineering Building, Box 19019, Arlington, Texas 76019, or telephone (Metro) 273-2571.

# Academic Regulations

**NOTICE: The regulations contained in this bulletin are based upon present conditions and are subject to change without notice. The University of Texas at Arlington reserves the right to modify any statement in accordance with unforeseen conditions.**

## GENERAL

Any student who registers to attend classes at The University of Texas at Arlington and is ineligible to attend for academic or disciplinary reasons will be dropped automatically from the rolls of the University.

**Students are required to report promptly any change in address to the Office of the Registrar.**

## MAXIMUM SEMESTER LOAD

Without permission from the appropriate academic dean, a student may not register in a Fall or Spring Semester for more than 19 hours at UTA or concurrently at UTA and another institution. Any student in violation of this regulation may be required to drop hours in order to be in compliance with the 19-hour rule or may be denied transfer credit for those hours in excess of 19 taken at another institution. (A student should consider total workload when planning his/her academic load.)

A student who registers in the Summer Sessions for more than 14 hours without permission from the academic dean may be required to drop sufficient hours to be in compliance with that number. The table below indicates the combinations of course work for which a student may enroll and stay within the 14 hours maximum load.

### COMBINATION OF SEMESTER HOURS PERMITTED

Maximum each: 5-week session + 11-week session

7	+	0
6	+	2
5	+	4
4	+	6
3	+	8
2	+	10
1	+	12
0	+	14

## CLASS ATTENDANCE

Class attendance and lateness regulations will be established by each instructor and announced to his/her classes. Such regulations may or may not, at the discretion of the instructor, include provisions for making up work missed by the student as a consequence of an absence.

1. A student who does not attend class at least once prior to the Census Date (12th Class Day) will be dropped from the rolls by the instructor unless he/she has received permission from the instructor to be absent during this period.
2. After the Census Date, an instructor may, at his/her discretion, have a student dropped from the class roll for excessive absence where such action is in accordance with the attendance policies as previously established by the instructor.
3. A student on scholastic probation must meet the requirements under "Terms of Scholastic Probation."
4. A student who is late to class is responsible for reporting his/her presence to the instructor after the class is dismissed.
5. A student who is dropped from a course for excessive absences will receive an F in that course.
6. The Office of the Vice President for Student Affairs publishes regularly a list of students who have absences authorized by the University (e.g., participation in athletic events or scholastic activities that are officially sponsored University functions). Instructors will provide these students an opportunity to make up work missed.

# ACADEMIC REGULATIONS

## GRADES, GRADE POINTS, AND GRADE REPORTS

The following grade procedure is used:

Grade	Description	Grade Points Per Semester Hour
A	Excellent	4
B	Good	3
C	Fair	2
D	Passing	1
F	Failure	0
X	Incomplete	0
W	Withdrawn	
P	Pass	
Z	No Credit (freshman English only)	

*DIL. MOUSSEN*

In order to receive a grade other than W, X, or F, a student must take a final examination if it is required in that course. Final examinations are conducted by the faculty at the end of each term. The grade of X will designate a temporary grade and will be considered an F in academic evaluations.

An incomplete grade (grade of X) must be completed by the end of the following semester, exclusive of the summer session, for a student to receive credit in the course. If the incomplete grade is not removed, it will be changed to an F. A student should not re-enroll in a course where a grade of X has been given.

To receive credit for ENGL 1301 or ENGL 1302, a student must make a grade of A, B, or C. Those who complete the course and whose final average is below a C will be given a grade of Z (no credit). The Z will not be used in computing a student's grade point ratio.

The general requirements for obtaining a degree at UTA stipulate an overall grade point ratio of 2.0, and a grade point ratio of 2.0 in the major field. A student's grade point ratio is determined by dividing the total number of grade points earned by the number of semester hours for which a grade other than W or Z is received. In addition, the following academic rules specifically apply:

1. A semester grade for a course is based upon the student's accomplishment of assignments, including a final examination, if one is required for that course. Final examinations are conducted according to a schedule published prior to the end of each semester.
2. Grades are reported at the conclusion of each semester and at the end of each summer term with one exception: beginning freshmen will receive a mid-semester grade. The mid-semester grade is not recorded on the student's permanent record. It is informational in character and is intended to benefit the student, parents, faculty advisor, and instructors. The grade reported at the end of a semester or term is the official and permanent evaluation of a student's performance in a given course.
3. A student's grades are not subject to transfer to another institution from UTA until the student has satisfied all obligations to the University, including financial and property obligations.

*Novell*

## GRIEVANCE RELATED TO GRADES

In attempting to resolve any student grievance regarding grades, it is the obligation of the student first to make a serious effort to resolve the matter with the individual with whom the grievance originated. Individual course instructors retain primary responsibility for assigning grades. The instructor's judgment is final unless compelling evidence shows discrimination, differential treatment, or procedural irregularities. If evidence warrants appeal, the normal academic channels are these: department chairman or program director, academic dean, Vice-President for Academic Affairs, President. However, before considering a grievance, the department chairman or program director may refer the issue to a departmental or school committee of faculty and students. If the committee cannot reach a solution acceptable to the parties involved, the matter will follow the remaining academic channels. (For grievances other than those related to grades, see instructions in Student Involvement Section.)

## REPEAT OF COURSE WORK

A student may repeat any course (other than nursing courses), provided the student's most recently earned grade in the course is below C. Nursing courses may be repeated if the earned grade in the course is below a C, but they may be repeated only one time. Courses transferred for credit to UTA from another college or university may not be repeated for credit.

A student is said to have credit for a course only if the student's most recently earned grade in the course is D or better.

## ACADEMIC REGULATIONS

All grades earned become a part of the student's permanent record and, except for W and Z, are used in computing the student's grade-point ratio.

A student may not repeat a course for additional hours toward a degree unless the catalog description specifically states that the course may be repeated for credit.

Courses originally taken or repeated at another college will not affect a student's grade-point average at UTA. If a student earns a grade of less than C in a course taken at UTA, he/she may take that course or its equivalent at another college or university for transfer to UTA only with the prior written approval of the student's major department chairperson or academic dean.

### **PASS-FAIL PROGRAM**

#### **(Engineering, Liberal Arts, Science, Nursing)**

Students who are majors in the Colleges of Engineering, Liberal Arts, or Science, or in the School of Nursing may take courses on a pass-fail basis, subject to differing rules established by the schools. The purpose of this arrangement is to offer students an opportunity to take courses which will broaden their education with less immediate emphasis on the need to achieve grade points. However, an F received on a pass-fail course will be evaluated the same as an F made on a regular basis, adversely affecting grade point average.

The student should consult with the major department regarding the necessary approvals before registering for a course to be completed on a pass-fail basis. A common requirement of the pass-fail programs is that a student must declare his/her intention to the instructor to take a course on a pass-fail basis by the Census Date of the semester. Complete details and requirements of the programs are available in the offices of the deans and in department offices of the colleges or schools.

### **SCHEDULE CHANGES (DROPS AND ADDS)**

A student who wishes to change his/her schedule by either dropping or adding a course should apply to the chairman of the department which offers the course. A person may officially drop a subject after counseling with the course instructor and by following the prescribed procedure. Students are responsible for adhering to the following regulations concerning drops and adds. These rules apply to regular semesters **and to equivalent time limits in summer sessions.**

1. A student may not add a course after the end of late registration.
2. A student may drop a course with a grade of W during the first six weeks of class.
3. From the seventh week of class through the 12th week of class a student may drop a course with a grade of W if passing or a grade of F if failing.
4. A student may not drop a course after the 12th week of class.
5. The Director of Student Administration may require a student to drop a course at any time upon the recommendations of the instructor and the concurrence of the department chairman.
6. If a student is dropped from a class as opposed to dropping of his/her own initiative, then a grade of F or a grade of W will be accepted at the instructor's discretion. Either grade will be appropriate regardless of the time period in which the student is dropped. One exception is a drop for excessive absences. A student dropped from a course for absences will receive a grade of F.
7. A student who desires to drop all courses for which he/she is enrolled must withdraw from the University. The student should complete a resignation form in the Student Administration section of the Registrar's Office (See Withdrawals).

### **WITHDRAWALS (RESIGNATIONS)**

A student who wishes to withdraw (resign) voluntarily from the University must complete the proper resignation form in the Student Administration Section of the Registrar's Office. A student who withdraws after the sixth week of class in a regular semester or the equivalent time in a summer session will be awarded a grade of W if passing a course or a grade of F if failing a course. A student may not withdraw (resign) after the 12th week of class in a regular semester or the equivalent time in a summer session.

### **HONOR ROLL**

Students who have excellent grades shall be recognized by being listed on the Honor Roll. At the end of each regular semester, those who have completed 12 semester hours or more, who have dropped no more than one course after the Census Date, who have a grade point ratio of not less than 3.0 (B average), who have no grade less than C, and who have no more than one grade of C shall be listed on the Honor Roll. Pass-fail work does not affect a student's eligibility for the honor roll.

## **ACADEMIC REGULATIONS**

providing he/she is taking 12 hours of other course work. Taking fewer than 12 hours will preclude listing on the Honor Roll. The grade point average, however, is not affected by a grade of P.

### **SATISFACTORY SCHOLASTIC PROGRESS**

A student is considered to be making satisfactory scholastic progress when (1) the student has not been on scholastic probation for a continuous period exceeding one semester; and (2) the student completes two-thirds of the course load for which the student registers (enrolls) each semester.

In extenuating circumstances, exceptions to the satisfactory scholastic progress regulations may be made by the Director of Student Administration.

### **SCHOLASTIC PROBATION POLICY**

A student has a grade point deficiency when the total number of grade points earned is less than two times the total number of semester hours attempted.

Any student who has undertaken fewer than 60 semester hours, exclusive of those for which a grade of W or Z was received, is placed on probation when a deficiency of 18 or more grade points is accrued.

Any student who has undertaken fewer than 60 semester hours, exclusive of those for which a grade of W or Z was received, and who is on probation, is required to maintain a 2.0 grade point average to remain in school. He/she is removed from probation when the grade point deficiency is reduced to fewer than 18.

Any student who has undertaken 60 or more semester hours, exclusive of those for which a grade of W or Z was received, is placed on probation if he/she has a grade point deficiency. For each semester on probation he/she must earn a 2.2 grade point ratio to remain in school until the grade point deficiency is removed.

Semester hours of credit that are transferred from another college or university are included as attempted hours in the academic evaluation. Grades and grade points earned at another college or university are not used in the academic evaluation at UTA.

#### **Students Dropped for Failure to Meet Terms of Probation**

A student who is dropped from the University for the first time will be suspended for the succeeding semester or term as follows:

1. If dropped at the end of the Fall Semester, he/she may enroll in the succeeding Summer Term.
2. If dropped at the end of the Spring Semester, he/she may enroll in the succeeding Fall Semester.
3. If dropped at the end of the Summer Terms, he/she may enroll in the succeeding Spring Semester.
4. A student who is dropped more than once will remain suspended for a minimum of 12 months and may be re-admitted only by permission of the Director of Student Administration in the Registrar's Office.
5. A student who re-enters the University after having been dropped for failure to meet terms of probation will re-enter on scholastic probation.

#### **Students Dropped for Grade Point Deficiency**

At any time a student's grade point deficiency amounts to 30, or more, he/she will be dropped from the University for an indefinite period of time and will be re-admitted only by special permission of the Director of Student Administration.

A student who re-enters the University after having been dropped for grade point deficiency will re-enter on scholastic probation.

In extenuating circumstances, exceptions to the academic suspension regulations may be made by the Director of Student Administration.

### **TERMS OF SCHOLASTIC PROBATION**

A student who is on scholastic probation may not take more than 14 semester hours without permission from the Director of Student Administration in the Registrar's Office. Violation of this regulation will be considered a violation of the student's probationary status.

A student who is on scholastic probation cannot hold office in any club or organization, cannot represent UTA at any official or social event, and cannot make any University trip without prior approval from the Student Administration Section in the Registrar's Office.

If a student withdraws (resigns) from the University while on scholastic probation, and if this action results in additional grade point deficiency, he/she has failed to meet the minimum requirements for removal of scholastic probation and will be suspended.

A student who is on scholastic probation and who incurs absences which are unauthorized may be suspended from the University.

If a student shows lack of ability to meet the scholastic standards of the University, in the judgment of the Director of Student Administration, he/she may be suspended.

A student who is under scholastic suspension may not enroll in, audit, or visit a class during either day or evening hours.

### FINAL EXAMINATIONS

Final examinations are scheduled at the end of each semester. In some courses a departmental final examination is given. Final examinations will be given only at the time printed in the official class schedule. Exceptions must be approved in advance by the academic dean.

### CLASSIFICATION

Students at UTA are classified in accordance with the number of semester hours earned. Hours earned is interpreted as hours passed at UTA plus hours accepted in transfer from other institutions and/or credit by examination.

Freshman — one who has earned fewer than 30 hours

Sophomore — one who has earned 30 hours but fewer than 60 hours

Junior — one who has earned 60 hours but fewer than 90 hours

Senior — one who has earned 90 hours or more and has at least a 2.0 grade point average on work attempted at UTA

### STUDENT EDUCATIONAL RECORDS POLICY

Students may have access to their own educational records during regular office hours by contacting the person or the office that maintains these records. A student must appear in person or send a written request for a copy of the record. Another person may not see a student's educational records unless written permission is given by that student. One exception to that rule allows a parent or guardian who is providing one-half or more of the student's financial support to obtain the educational record. Faculty and staff members of the University have access to student educational records in the performance of their regular duties. If an educational record contains information on more than one student, then a student desiring access may review only the parts relating to himself/herself.

Students may have official copies of their UTA transcripts mailed to other institutions or they may obtain copies for their own use. A student must sign a request form in the Registrar's Office or send a signed, written request to release the transcript. Requests will not be accepted by telephone or from persons other than the student unless the student has given written permission.

The "Family Rights and Privacy Act of 1974" provides that a university may release directory-type information about students. The information released may include the following items: the student's name, address, telephone number, date and place of birth, major field of study, participation in officially recognized activities and sports, weights and heights of members of athletic teams, dates of attendance, degrees and awards received, and the last educational institution attended. Each semester UTA publishes a Student Directory that is available to students and the public. It contains the following information: the student's name, classification, major field of study, address, and telephone number. The Act states that a student has the right to withhold this information from the public and other students. A form to withhold this information is available in the Registrar's Office; unless this form is completed before the Census Date of the semester, the data about a student will be released as public information.

Students have the right to challenge the content of their educational records to insure that the records are not inaccurate, misleading, or in violation of other rights of the students. This allows students an opportunity for the correction of inaccurate or misleading information, or permits written explanation from students concerning the content of the records. Any evidence regarding an inaccurate or misleading record should be presented to the individual in charge of the office where the record is maintained.

For admission, an applicant must submit his/her Social Security number. It serves as the basis for identification of various University records. The usage will vary according to the requirements of the office in which the record is located.

## **STUDENT SERVICES**

# **STUDENT SERVICES**

Several offices on campus offer specific services to students. Refer to the following directory to locate the proper office for a specific service.

### **OFFICES OF THE ACADEMIC DEANS**

1. General advising
2. Conferences on curricula and degree plans
3. Requests for additional loads
4. Cooperative education programs

### **CHAIRMEN OF DEPARTMENTS**

1. Transfer from one section to another in the same department
2. Conferences about major or minor courses
3. Dropping single courses
4. Adding single courses
5. Preparation of degree plans

### **ACADEMIC ASSISTANCE**

1. Math Tutorial Clinic — Room 314, Nursing Building
2. Nursing Learning Resource Center — Room 124, Nursing Building
3. Reading Lab — See Reading Specialist in Office of Counseling, Testing, & Career Placement, 216 E.E. Davis Hall
4. Science Learning Center — 105 Life Science Building
5. S.O.A.R. (Students Obtaining Academic Readiness) — Information regarding free tutoring or counseling available in 345 University Hall
6. Writing Lab — 104 Ransom Hall

### **OFFICE OF THE VICE PRESIDENT FOR STUDENT AFFAIRS**

1. Policy matters pertaining to student life and activities
2. General administration responsibility for the following:
  - a. Counseling, testing, and career placement
  - b. Financial aid
  - c. Handicapped student services
  - d. Student health services
  - e. International student affairs
  - f. Minority student services
  - g. Housing policies and regulations
  - h. Students' attorney
  - i. Student discipline
  - j. Student government
  - k. Student photo ID card
  - l. Student publications
  - m. University Center (Operations, Food Service, Mail Service)
  - n. Project SOAR special services
  - o. Research and Evaluation
  - p. Activities and organizations
  - q. Fraternities and sororities

### **INTERNATIONAL OFFICE**

1. Assistance and counseling for international students
2. Referral to proper offices, on campus or off, for problems that cannot be solved by office staff
3. Coordination of special activities for international students
4. Coordination with community organizations of activities involving international students
5. Supplying of documents necessary for international students (e.g., extension of stay, travel, dollar exchange, passport extension) except admissions documents



**MINORITY STUDENT SERVICES**

1. Aids in the recruitment of students from diverse ethnic backgrounds
2. Encourages minority group involvement in the University community
3. Facilitates the development of minority student programs and activities
4. Provides opportunities for minority students to achieve their academic aspirations through counseling and coordination with other University offices

**OFFICE OF THE REGISTRAR AND ADMISSIONS**

1. Information concerning undergraduate admission
2. Filing of either high school or college transcripts
3. Transferring credits from another institution
4. Conferences concerning academic probation
5. Withdrawals (resignations) from the University
6. Change of major
7. Administration of attendance regulations
8. Re-admission of students on scholastic suspension
9. Notification of teachers for student illness
10. Application for graduation
11. Class schedules
12. Information concerning degrees
13. Change of address
14. Veterans' advising and enrollment certification
15. Grade reports at termination of semester
16. Request for transcript

**OFFICE OF THE BURSAR**

1. On other than registration days, payment of fees and bills due to the University
2. Conferences on all problems arising in connection with fees and bills
3. Information concerning repayment of loans
4. Residence hall room rent
5. Check cashing services

**Check Cashing Procedures** — A current University identification card and a driver's license are required of anyone desiring to cash a personal check. A student may cash a personal check for an amount not to exceed \$25.

**Returned Checks** — A charge of \$10 will be made for each returned check. A person who gives UTA a bad check (one in which the bank is not at fault) will be subject to one or more of the following actions: (1) a bar against readmission of the student, (2) withholding of the student's grades and official transcript, (3) withholding of degree to which the student otherwise would be entitled.

Additionally, the University will not accept a check from anyone who has given a total of two bad checks unless the person submits a written statement from the bank stating "bank error or unusual circumstance" to be the cause of the bad checks.

**POLICE DEPARTMENT**

1. Investigates collisions
2. Investigates criminal transgressions
3. Provides crime prevention speakers and programs for classes and clubs
4. Provides parking decals, rules and information (see PARKING FEES)
5. Handles lost and found items
6. Provides motorist assistance

**ACADEMIC COMPUTING FACILITIES**

1. Available to all current UTA students and faculty
2. Computers (located in basement of Davis Hall)
  - A. IBM 4341/MO2 with 8MB memory, four tapes, 2870 MB disk
  - B. DEC 2060 with 512K memory, two tapes, 400 MB disk
3. Remote Batch and interactive terminals located in Davis Hall, Ransom Hall, and Business Building
4. Major programming languages are available

## **STUDENT SERVICES**

5. Normal availability hours (except for holidays, semester breaks and early semester):  
Monday — Thursday 8 a.m.-4 a.m.  
Friday 8 a.m.-10 p.m.  
Saturday — Sunday 9 a.m.-9 p.m.
6. Offices in Room B66 Davis Hall

## **HANDICAPPED STUDENTS' ASSISTANCE**

The Handicapped Student Services Office provides an array of services for handicapped students, including: pre-registration; readers; note-takers; test-takers; mobility assistance; wheelchair athletics; library assistance; wheelchair repair; adaptive physical education courses; personal, academic, and career counseling; laboratory assistance; equipment information; recreation; live-in attendants.

The coordinator of the office requires a personal interview with handicapped students prior to registration to assist in integrating physically-impaired students with college. Additional information may be obtained in Room 252, E. E. Davis Hall.

## **VETERANS' ASSISTANCE**

Veterans may receive information concerning available veterans' benefits, enrollment, certification of benefits, tutorial assistance, and general advising, by contacting the Director of Veterans' Affairs in the Registrar's Office.

## **STUDENTS' ATTORNEY**

The students' attorney will be available to advise students regarding legal problems and to assess their need for further legal assistance. The Office of the Students' Attorney is located in B9 University Center.



# Expenses

## TUITION AND MANDATORY FEES \*

### REGULAR SESSIONS (& Summer 11-Week Sessions)

The tuition and mandatory fees given below include \$8 per capita Building Use Fee, plus a \$6 per semester hour General Fee, a \$5 per semester hour Student Services Fee (up to a \$60 maximum), and a \$1.25 per semester hour Student Union Fee (up to a \$15 maximum).

Semester Hours	Texas Residents	Non-Texas Residents
1	\$ 70.25	\$ 60.25
2	82.50	112.50
3	94.75	164.75
4	107.00	217.00
5	119.25	269.25
6	131.50	321.50
7	143.75	373.75
8	156.00	426.00
9	168.25	478.25
10	180.50	530.50
11	192.75	582.75
12	205.00	635.00
13	213.00	681.00
14	223.00	727.00
15	233.00	773.00
16	243.00	819.00
17	253.00	865.00
18	263.00	911.00
19	273.00	957.00
20	283.00	1003.00
Each Additional Hour	10.00	46.00

### SUMMER 5-WEEK SESSIONS

The tuition and mandatory fees given below include \$4 per capita Building Use Fee, plus a \$6 per semester hour General Fee, a \$5 per semester hour Student Services Fee (up to a \$30 maximum), and a \$1.25 per semester hour Student Union Fee (up to a \$7.50 maximum).

Semester Hours	Texas Residents	Non-Texas Residents
1	\$ 41.25	\$ 56.25
2	53.50	108.50
3	65.75	160.75
4	78.00	213.00
5	90.25	265.25
6	102.50	317.50
7	111.50	363.50
8	121.50	409.50
Each Additional Hour	10.00	46.00

**\*NOTICE: Due to conditions which may arise beyond the control of The University of Texas at Arlington, fees may be changed during the next year without notice. The University reserves the right to modify any fee in accordance with unforeseen conditions.**

**Other Expenses** — Students registering at The University of Texas at Arlington must make and maintain a \$10 General Property Deposit and pay a \$2 per year Photo Identification Card Fee in addition to Laboratory Fees and Special Courses Fees as required.

## EXPENSES

**Tuition Exceptions** — State law provides for several exceptions to the tuition rates.

1. Teaching assistants and associates, research assistants and associates, and certain other employee categories employed at least half-time in positions which relate to their degree programs will be charged the same rate as Texas residents.
2. Holders of certain competitive scholarships in the amount of \$200 per year or more awarded through the UTA scholarship committee will be charged the same rate as Texas residents.
3. Certain non-resident students who have been classified as Texas residents at previous registrations will be charged the same rate as Texas residents.
4. Nursing students will be charged \$4 per semester hour with a \$20 minimum and \$50 maximum. (Summer Five-week Session: \$4 per hour, \$10 minimum and \$25 maximum.)
5. Texas Veterans Exemption (Hazelwood Act): Article 2654b-1, Vernon's Texas Civil Statutes, provides an exemption from tuition and some fees. Texas veterans may qualify for this exemption provided they:
  - a. Were a Texas resident at the time they entered the service and are currently considered a Texas resident for tuition assessment,
  - b. Had active military duty (for purposes other than training) for more than 180 days beginning after 1 February, 1955; or they served between 7 December, 1941 and 31 January, 1955,
  - c. Are honorably discharged from active service, and
  - d. Have exhausted veterans educational benefits under federal legislation.

Some types of discharges are excluded from eligibility. Application forms and instructions are available at the Admissions Office.

**Schedule Changes (Adds)** — A student must obtain the add form from the academic department and take it to the Bursar's Office (add cashier) for payment on the same day. The regular registration fee receipt should also be presented.

## ESTIMATED EXPENSES

The Student Financial Aid Office estimates that average expenses for a full-time student for two semesters at the University are: tuition and fees \$440, books and supplies \$370, room and board \$3230; total \$4040. Tuition for an out-of-state student is \$40 per semester hour plus fees of \$260 for two semesters.

## NON-RESIDENT TUITION

All students attending UTA who are non-residents of this state will be charged additional tuition in accordance with the state law.

According to interpretations by the Coordinating Board, Texas College and University System, of Section 54.052 (b)(e) of the Texas Education Code, the following information pertains: "An individual under eighteen (18) years of age, living away from his family, and whose family resides in another state or has not resided in Texas for the 12-month period immediately preceding the date of registration shall be classified as a non-resident student; or an individual eighteen (18) years of age or over who resides out of the state or who has come from outside Texas and who registers in an educational institution before having resided in Texas for a 12-month period shall be classified as a non-resident student."

A non-resident student classification is presumed to be correct as long as the residence of the individual in the state is primarily for the purpose of attending an educational institution. After residing in Texas for at least twelve (12) months, a financially independent non-resident student can establish residence as provided in the rules and regulations adopted by the Coordinating Board, Texas College and University System. Financial independence must be demonstrated and acts indicative of a fixed intention to remain in Texas must be verified.

Two of the most common exceptions included in the state statute are as follows: (1) A non-resident who marries a resident of Texas is entitled to pay the resident tuition fee regardless of the length of time lived in Texas; proof of marriage must be submitted to the Registrar's Office prior to registration. (2) Usually, a member of the United States military forces is entitled to pay the resident tuition fee for self or dependents, providing that each semester he/she submits to the fee assessors in registration a letter from his/her commanding officer stating that he/she is currently on permanent assignment in the state. (3) The \$50 maximum tuition fee for nursing students applies to non-residents as well as residents of Texas.

The responsibility of registering under and maintaining the proper residence classification rests on the student. If there is any question concerning classification as a resident of Texas at the time of registration, or any time thereafter, it is the student's obligation to consult with the residence advisor in the Office of the Registrar and have the classification officially determined. All requests for reclassification should be submitted to the Registrar's Office at least 30 days prior to the registration period in question.

### **STUDENT SERVICES FEE**

The Student Services Fee is compulsory. It provides free copies of the campus newspaper and either free admission or reduced fees to intercollegiate events at home, formal convocation events, activity programs, and services of the Student Health Center (does not cover charges for medication, laboratory work, or x-rays).

### **STUDENT UNION FEE**

The Student Union Fee is compulsory. Its sole purpose is financing, constructing, operating, maintaining, and improving the E.H. Hereford University Center.

### **SPECIAL COURSE AND LABORATORY FEES**

Private lessons required of music majors have a \$20 special fee. In physical education some activities require special fees. Refer to the Physical Education Activity section for these fees. Laboratory courses typically require the payment of fees. Amounts are stated in the course description.

### **GENERAL PROPERTY DEPOSIT**

Every student registering at UTA will be required to make and maintain a property deposit of \$10. The records will be reviewed from time to time and if charges have been made against the deposit, the student will be required to bring the deposit up to \$10.

The deposit is refundable upon request to the Bursar's Office when the student withdraws from school or graduates. The refund will be mailed as soon as possible. Deposits which are dormant for four years are forfeited into the General Property Deposit Scholarship Fund.

### **PHYSICAL EDUCATION UNIFORM, TOWEL FEE**

Students registering in activities requiring special uniforms are required to pay a uniform and towel fee of \$8 per semester.

### **PARKING FEES**

Students will register their cars, making a single payment for the entire school year or the balance of the school year in which they register, whichever is applicable (school year is from September 1 through August 31). The following fees will be charged for autos at the initial period of registration:

<b>AUTOMOBILES</b>	<b>DAY</b>	<b>NIGHT</b>
Fall Semester	27.00	15.00
Spring Semester	15.00	9.00
First Summer Semester	8.00	7.00
Second Summer Semester	6.00	4.00
<b>MOTORCYCLES</b>	<b>DAY</b>	<b>NIGHT</b>
Fall Semester	15.00	7.00
Spring Semester	8.00	4.00
First Summer Semester	4.00	3.00
Second Summer Semester	3.00	2.00

Commuting students have found that car pools are an economical way to travel between home and school. However, if the car pool rotates cars, each vehicle must be registered with the University Police Department's Parking Facilities Office in B-13 of Davis Hall, and only one of the pool's vehicles may be parked on campus at any given time. Each member of the car pool must be present at the time of registration. The first vehicle pays full price for a decal for the semester in which the registration takes place and each of the others may register for \$1. Refer to the Traffic and Parking Rules and Regulations for additional details.

In the event that a student wishes to register two or more vehicles in his/her own name, *he/she must present proof of ownership for all vehicles.*

## EXPENSES

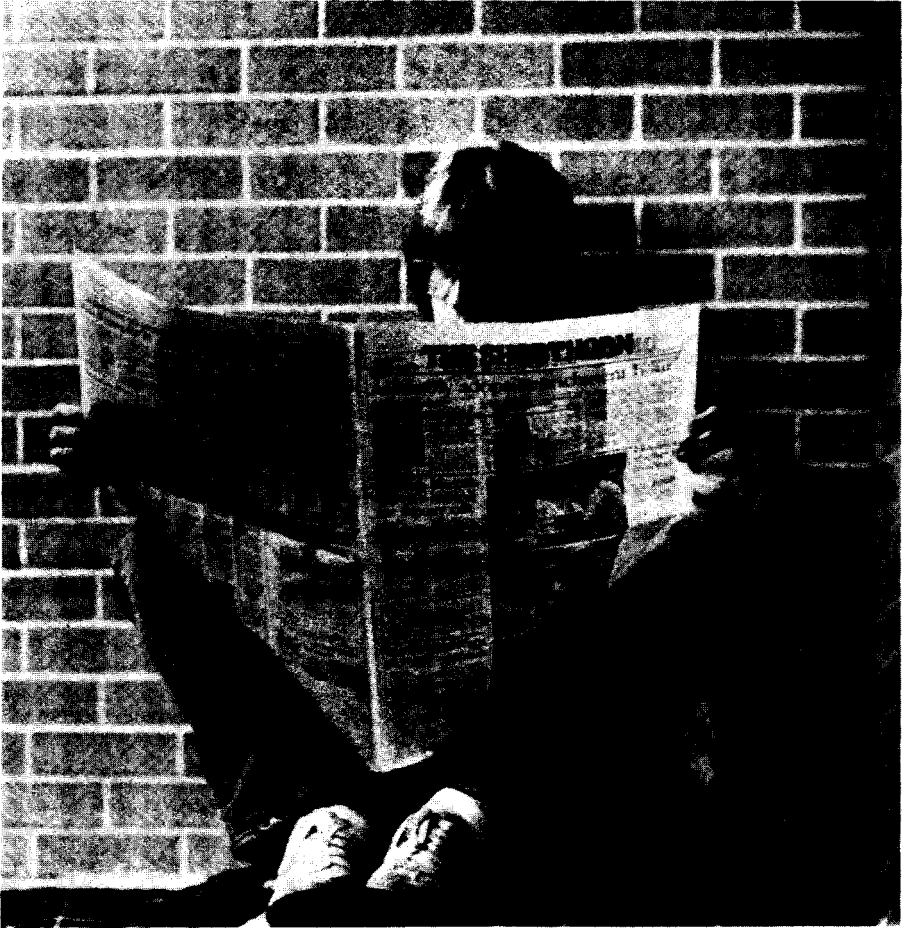
All decals must be paid for either at registration or at the Bursar's Office and a paid receipt presented to the Parking Office. The Parking Facilities Office is open from 7:30 a.m. to 7:00 p.m. Monday through Thursday and from 7:30 a.m. to 5:00 p.m. on Friday. Complete Traffic and Parking Rules and Regulations are available in the office at B-13, Davis Hall.

A student who is graduated at the end of the Fall Semester or who terminates enrollment for other reasons at the end of the Fall Semester or beginning of the Spring Semester may receive a partial refund of the parking fee provided he/she turns in the remnants of all parking decals and that the transaction is made on or before the Spring Semester Census Date.

The Police Department operates a free shuttle bus service daily beginning at 7:30 a.m. between the Maverick Stadium parking lot and inner campus. Students who park their vehicles on any University parking lot still must display a current parking decal on that vehicle. The last bus leaves the inner campus back to the parking lot at 5:30 p.m. daily. Hours are subject to change based on ridership.

## LATE REGISTRATION FEE

For late registration during long sessions, there shall be a compulsory fee of \$5 for the first day, plus \$2.50 for each additional late day, with the maximum amount being \$15 for any one semester or term.



**COST OF BOOKS**

Cost of books depends upon the courses selected. Generally, books for technical subjects are somewhat higher than those for the usual academic subjects. In certain technical, scientific, and fine arts fields, there are extra expenses for equipment and supplies.

The bookstore has available both new and used textbooks. The bookstore will purchase used textbooks which are in good condition at any time during the year provided such textbooks continue to be used by the academic departments.

**TRANSCRIPTS**

The Registrar's Office will mail official copies of transcripts at the written request of a student for a fee of \$1 each. An official transcript will not be issued unless all financial obligations to the University have been satisfied. A student filing a degree plan may have an unofficial transcript prepared and sent to his/her major advisor for \$.50. Telephone requests for transcripts cannot be accepted.

**HOUSING, FOOD EXPENSES**

Information about the housing deposit, rent, and off-campus housing may be found in the section titled Student Housing. Information about campus food service may be found in the section titled University Center.

**GRADUATION FEES**

A graduation fee of \$2.50 is charged each baccalaureate degree candidate when application is made for graduation. An additional fee to cover the cost of cap and gown rental is charged each candidate who plans to attend any graduation ceremony. A student who requests that his/her diploma be mailed after graduation will be required to pay the first class mailing cost.

**REFUNDS**

**TOTAL WITHDRAWAL FROM SCHOOL** — A student will receive a refund according to the schedule below if he/she officially withdraws through the Student Administration section of the Registrar's Office.

1. A student who withdraws prior to the first class day will receive a 100% refund.
2. If student withdraws on or after first class day, then the refund shall be determined as indicated:

**Fall and Spring Semesters**

During University class days 1 through 5	80%
During University class days 6 through 10	70%
During University class days 11 through 15	50%
During University class days 16 through 20	25%
After 20th University class day	no refund

**Summer Sessions**

During first, second, or third University class day	80%
During fourth, fifth, or sixth University class day	50%
After sixth University class day	no refund

**DROPPING COURSE(S) AND REMAINING IN SCHOOL** — All the additional costs that apply to courses dropped before the Census Date\*, when the student remains in school, will be refunded.

**PROCESSING AND DISTRIBUTION OF REFUND CHECKS** — Refund checks cannot be prepared until a computerized audit of fees has been performed; thus, refunds normally cannot be issued until approximately eight weeks after a semester starts.

Refund checks are mailed to the address the student indicates on his/her enrollment packet at registration.

Refunds for recipients of certain types of financial aid administered through the University will be applied to the accounts from which the funds were received. In addition, refunds are applied to bills owed to the University by the student.

Inquiries concerning refunds should be directed to the University Business Office, Room 421, E. E. Davis Hall.

**\*September 12 in 1983 Fall Semester; January 30 in 1984 Spring Semester; June 7 in 1984 Summer Session (first five-week session and 11-week session); July 19 in 1984 Summer Session (second five-week session).**

# Financial Aid

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Student financial aid is available at The University of Texas at Arlington. Any interested student should make application for funding even if the student has been declared ineligible in prior years. The Office of Student Financial Aid urges any interested student to apply for student financial aid and will be glad to assist the student in the completion of the application, if additional explanation is required. Financial Aid is generally limited to U.S. citizens or those in this country on other than temporary visa status and accepted for enrollment or enrolled and making satisfactory academic progress.

## SCHOLARSHIPS

All colleges and schools and many departments within the University have a number of scholarships available for deserving students. These scholarships range from modest sums up to \$3,000 per annum. Some are renewable for a four-year period.

The application deadlines and procedures vary widely from department to department and students interested in applying for these scholarships may contact the dean of the appropriate college or the appropriate department chairman.

**Enrolled Students** — Any student with 30 or more semester hours of credit at UTA and a 3.0 GPA is eligible to apply for a scholarship. Applications are accepted between February 1 and June 1, and are considered according to specific eligibility requirements.

**Freshmen** — The highest ranking graduate of any accredited high school in Texas certified by the Texas Education Agency is entitled to a scholarship. The scholarship pays tuition for a period of one year of academic work, provided the initial enrollment date is no later than the first long session after graduation from high school. Eligible students must claim exemption at the Admissions Office.

Competitive scholarships are also available for freshmen. The applicant must be in the top quarter of his/her high school class and have a combined Scholastic Aptitude Test score of 1200, or ACT score of 27, with preference given to applicants with 1300 or more on the SAT, or 28 or more on the ACT. Applications will be accepted at the Financial Aid Office between February 1 and March 31.

The University makes annual awards to selected National Merit Scholarship finalists and semi-finalists. Selection is made from the list of National Merit candidates who indicate UTA as their choice for college enrollment. Notification of the award is made by the National Merit Scholarship corporation.

**Transfers** — Scholarships are available for transfer students. These scholarships require a minimum score of 1300 on the SAT or 28 on the ACT, not less than 30 semester hours of work completed, and a minimum of 3.0 GPA on all college work attempted. Application period is from February 1 to June 1.

## STUDENT EMPLOYMENT SERVICE

Located at the west entrance of the University Center, the Student Employment Service can help students obtain suitable off-campus employment. The staff maintains daily communication with Metroplex employers who list thousands of jobs every year. Also, students who are eligible for College Work-Study can be referred to off-campus agencies which have jobs related to their majors.

Counselors advise students to plan at least four consecutive hours for a job, either in the morning or afternoon. In addition to the regular job referral service, the staff has information of continuous listings, summer camps, resorts, federal and state parks, and certain overseas summer employment opportunities.

Any person currently enrolled or accepted for admission to UTA, or his/her spouse, may use the service.

## ALUMNI LOAN FUND

The UTA Alumni Association and other friends of the University have established loan funds for the benefit of students who need to borrow to meet current expenses. These loans are for amounts up to \$300 and are to be repaid during the semester in which the money is borrowed. Applicants must have at least 2.0 GPA and have completed 15 semester hours at UTA.

## GUARANTEED STUDENT LOAN (FAF required)

The Guaranteed Student Loan program enables any eligible student to borrow funds to meet legitimate educational expenses. These loans cost the student no interest when enrolled on at least a half-



time basis. However, a guarantee fee and an origination fee are paid by the student when the loan is advanced. Repayment of principal and interest at the rate of 9 percent begins six months after the end of the enrollment period and may be scheduled for a period not to exceed ten years. An undergraduate may be able to borrow up to \$2,500.

The application process for GSL is initially the same as that of the need-based programs, requiring a Financial Aid Form, as the loan is integrated with other financial aid programs after consideration of the financial support expected from the family and the student.

### **ASSISTANCE BASED ON NEED**

A variety of student financial aid programs is available to students at The University of Texas at Arlington. The institution participates in all of the federal student financial aid programs offered through the United States Office of Education. Complementing these, other grants, loans, and scholarships are available to the student with exceptional financial need.

Students anticipating the utilization of any of the following student financial aid programs should complete a Financial Aid Form (FAF) as early as possible prior to their actual enrollment at the University. Processing of this form requires four to six weeks and aid packages are awarded on the basis of availability of funding. The Financial Aid Form can be obtained through the Financial Aid Office or nearest high school counselor.

**PELL GRANTS — (Formerly BEOG) (FAF required)** — Each undergraduate applicant for financial aid is required to apply for this grant before other aid may be awarded although receipt of other aid is not restricted to students who are Pell Grant eligible. Application is made by completing the FAF and checking the section requesting consideration for Pell Grant.

This entitlement program provides for the awarding of grants to certain students who are enrolled on at least a half-time basis (6 semester hours). The actual amounts of the grant are determined from the student eligibility index, which results from a consideration of the cost of education at the individual institution and calculations of the amounts that the students and their families may be expected to contribute toward their educational expenses. The expected family contribution is determined on the basis of the Uniform Methodology system which was developed and approved by the United States Congress.

**College Work-Study Program (FAF required)** — The College Work-Study Program is a federally supported financial aid program whereby students may be employed in part-time positions in order to defray portions of their educational expenses. Under this program, the University offers positions of employment in many departments on campus and in several off-campus locations. This program of "self-help" is strongly emphasized by the Office of Financial Aid at UTA. The Work-Study Program's primary advantage is that it makes accessible to students financial aid funding without the burden of loan repayment.

**Supplemental Educational Opportunity Grants (FAF required)** — These grants are available to assist undergraduate students with financial need who would be unable to enter or remain in college due to their lack of financial resources.

**Grants-in-Aid (FAF required)** — The State of Texas has made available a limited amount of funds as grants-in-aid to needy students not to exceed half of the student's financial need or \$100 per month, whichever is less. Further information is available through the Financial Aid Office.

**Long-Term Loans (FAF required)** — UTA participates in several long-term loan programs. The common element in all long-term loans is the deferred repayment provision that permits a student to repay the loan after termination of at least half-time studies at the University. All such loans accrue no interest while the borrower is enrolled on at least a half time basis. The programs offered at UTA are National Direct Student Loan Program, Guaranteed Student Loan Program, and the Nursing Loan Program.

A new long-term loan program has been authorized to assist parents of dependent students or, where applicable, spouses of independent students. This loan program is expected to be available to UTA students by Spring 1983, but is not clearly defined at the publication date of this catalog. Students may qualify for this type of assistance when additional aid is needed to meet their educational costs.

**Nursing Scholarship Program (FAF required)** — Scholarships are available in amounts up to \$2,000 for an academic year to students of exceptional need who are enrolled in either an undergraduate or a graduate program leading to a career in nursing. Information and applications may be obtained from the Financial Aid Office.

**General Fee Waiver (FAF required)** — In cases of exceptional financial need the state provides for a waiver of the \$6 per hour general fee. Students qualifying for this type of assistance will still be

## **FINANCIAL AID**

required to pay the \$8 per capita building use fee. Further information may be obtained from the Financial Aid Office.

### **LAW ENFORCEMENT EDUCATION PROGRAM**

Grants or loans for the amount of tuition and fees may be made to full-time or part-time students who are already employed in law enforcement or are on official leave of absence from such an agency. Information may be obtained through the Financial Aid Office.

### **FINANCIAL COUNSELING**

The Financial Aid Office provides financial or budgetary counseling for any and all students whether or not they qualify for other types of financial assistance.

### **OUT-OF-STATE STUDENT ASSISTANCE**

Several states offer aid to their students attending schools in other states. Amounts and requirements for this assistance vary greatly. Information can be obtained from the Office of Student Financial Aid.



# Office of Counseling, Testing, and Career Placement

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The Office of Counseling, Testing, and Career Placement is located at 216 Davis Hall. The major programs of service to undergraduate students include orientation, counseling, career placement, academic skills building, and testing.

## Orientation

Orientation is provided to assist all incoming students with an understanding of University policies and services and to instruct incoming students about class scheduling and registration procedures. Freshmen students and their parents are invited for an all-day orientation on a scheduled basis, which also includes the opportunity to register for classes. Transfer students are also invited for an all-day orientation during which time they receive advisement for classes. As students make transitions to new developmental levels throughout their stay at UTA, a variety of other informational orientation programs are provided in the areas of career planning, academic planning, and study skills.

## Counseling

Three areas of life planning are emphasized in counseling services: personal counseling, academic skills counseling, and career counseling. Group training is used for the majority of counseling services, and students can schedule individual appointments with counselors. All group training seminars are described in the *Catalog of Seminars*, available at 216 Davis Hall. Skill building seminars include reading comprehension, study skills, time management, test preparation, interest assessment, resume and interview preparation, and a host of other seminars designed to help students in their development. Students are encouraged to use the materials and services in SOAR (see Special Services), and the variety of learning labs in academic departments around campus.

## Testing

The following test programs are administered on national test dates: Aptitude Testing Program (SAT and Achievement Tests); American College Testing Programs; Graduate Record Exams; Graduate Management Admission Test; Law School Admissions Test; and Test of English as a Foreign Language. The SAT is also administered on an institutional basis. Additional tests scheduled by the office for specific purposes are: College Level Examination Program; Foreign Language Advanced Standing Exams; Career Interests and Aptitudes; and the Miller Analogies Test. Application forms are available for all of these tests at 216 Davis Hall. Detailed test preparation guides for a variety of tests are available in the University Book Store. The Continuing Education Office conducts test preparation seminars. Detailed information on test dates, applications, and procedures is available in 216 Davis Hall.

## Placement

The opportunity to have on-campus employment interviews with national, local, and state firms is an advantage to all graduating students. Recruiting season is generally the busiest during October, November, February, and March. The Jobs Hotline service for UTA alumni is an additional placement service, with listings of immediate job openings. The media lab and placement library, also at 216 Davis Hall, contain information in printed, audio-visual, videotape, microfiche, and computer formats. The materials are about employers, careers, other colleges, and reading.

# Student Housing

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## RESIDENCE REQUIREMENTS

Single, full-time students who have completed fewer than 60 credit hours and are not living with parents or legal guardians must live in residence halls of The University of Texas at Arlington as long as space is available. For the past several years, requests for on-campus housing have exceeded the capacity.

To receive permission to live off-campus, a written request to the Director of Housing is required. Exceptions to the on-campus housing requirements are considered on an individual basis.

## TYPES OF HOUSING AND RESERVATIONS

### Residence Halls

University housing facilities include two residence halls for men, one for women, and one that is coed. A total of 843 students can be housed in the four residence halls.

**Brazos House** — A coed residence hall with capacity for 32 women and 80 men. Women live on a separate ramp. The rooms are arranged in two-room suites with adjoining bath facilities. Each room houses two students. Brazos is not air-conditioned.

**Lipscomb Hall** — A residence for women with a capacity of 344 students. The south wing is arranged in two-room suites with connecting bath. The north wing is arranged in three-room suites with private bath facilities for each suite. Each room houses two students. The south wing is not air-conditioned; the north wing is air-conditioned.

**Pachi Hall** — A residence for men with a capacity of 142 students. The rooms are arranged in single units with two community hall bath units on each of its three floors. Each room houses two students. Pachi is not air-conditioned.

**Trinity House** — A residence for men with a capacity of 245. The rooms are arranged in three room suites with private bath facilities for each suite. Each room houses two students. Trinity is air-conditioned.

### SUMMER SCHOOL HOUSING

Students desiring residence hall space for the summer sessions are usually housed in one air-conditioned hall, which becomes coed only during summer school. Non air-conditioned residence halls may be used for any residents not assigned to the air-conditioned hall.

### APPLICATIONS

Because of the high demand for student housing, accommodations may not be available for all students who apply. Students wanting residence hall space should apply as early as a year before the semester he/she wishes to attend. The student may submit an application before being accepted for admission to the University. However, he/she must be a full-time student at the time of occupancy. A student's name will be placed on the waiting list for the appropriate semester, according to the date the application is received in the Housing Office. The deposit **is not** required with the application. A security deposit will be required upon receiving an assignment and will be paid in conjunction with pre-payment of rent at the time the contract is to be returned.

### ASSIGNMENTS

Assignments for new students will be made in April for the Fall Semester and December for the Spring Semester. Students who do not receive an assignment will remain on the waiting list according to the date an application is received in the Housing Office. As cancellations occur, assignments will be made from the waiting list.

### COST\*

The 1982-83 rental rates for residence halls ranged from \$850 per year for a non-air-conditioned room to \$980 per year for an air-conditioned room. These rates do not include meals. Please refer to the section of the catalog on UNIVERSITY DINING SERVICES for information on the meal plan.

**\*Contact the Housing Office for 1983-84 rental rates.**

### APARTMENTS AND HOUSES

The University owns 12 apartment complexes with 387 one-bedroom and 45 two-bedroom apartment units. All complexes are located within walking distance of the campus. Eleven apartment complexes are unfurnished and one complex is furnished. All apartments have air-conditioning, heating, and kitchen appliances.

The University also owns and leases 78 two-bedroom and 52 three-bedroom houses. All houses are unfurnished; most are not air-conditioned and require space heaters. The houses are not equipped with kitchen appliances.

### APPLICATIONS

Applications for a house or apartment submitted during APRIL, MAY, JUNE, and JULY, will be placed on a waiting list for possible assignment in MAY, JUNE, JULY, AUGUST, or SEPTEMBER. On October 1, all unassigned applications submitted during this period will be discarded.

Applications submitted during OCTOBER, NOVEMBER, and DECEMBER will be placed on a waiting list for possible assignment in OCTOBER, NOVEMBER, DECEMBER, or JANUARY. On February 1 all unassigned applications submitted during this period will be discarded.

### APARTMENT/HOUSE RENTAL RATES\*

The 1982-83 rental rates for University-owned houses range from \$185 to \$300 per month plus all utilities. The apartments range from \$170 to \$330 per month, plus electricity in some of the complexes.

\*Contact the Housing Office for the 1983-84 rental rates.

### HOUSING REFUND

The security deposit for apartments, houses, and residence halls will be refunded at the end of the lease period pursuant to the rental contract, providing the following steps have been taken:

1. Resident's room/facility thoroughly cleaned.
2. No damage incurred.
3. Inventory form completed and signed.
4. Key checked in.

The Business Office will mail the refund to the student at the address specified on the Inventory Form.

### RESIDENT RESPONSIBILITIES

Resident students are cautioned to read carefully and to assume full responsibility for terms and conditions stated on application forms, information sheets, and contracts.

Upon occupying student housing, each student is responsible for all property in the facility, and must pay for any damages beyond normal wear and tear.

All residents are expected to be familiar with and abide by housing regulations, University rules and regulations, and the **Rules and Regulations of the Board of Regents of The University of Texas System**. Students who violate these rules are subject to disciplinary action by the Office of the Vice President for Student Affairs.

# University Center

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The E.H. Hereford University Center is what its name implies — the center of University activity. With 15 major meeting rooms, lounges, a ballroom, six different food service areas, bowling and billiards, post office, general store, gallery, video room, music listening room and night club, the center serves many University needs. The center is also home for all 160 campus student organizations, Student Congress, and the Student Activities Board.



## UNIVERSITY DINING SERVICES

University Dining Services provide a variety of services including dining and production facilities, catering services, meeting areas, and special events. The following dining and production divisions are found within and outside the Hereford University Center: Table Top Dining Room (Cafeteria); Rim Rock Dining Room (grill and sandwich shop); Caprock Dining Room (buffet); Sweet Stop (ice cream and bakery); Dry Gulch Pub; and The Corral (fast food). Services are offered on a regular basis through the week and on weekends.

Fifteen- or twenty-meal-per-week board contracts are available for the Table Top Cafeteria. This "Home-Style" plan can be purchased through the University Center Information Desk. In addition to cash, purchases may be made with University Center "Meal Deal" coupons. The coupon program is a convenient, money-saving system available to University students, staff, and faculty. Contact the University Center Information Desk for details of these services.

The catering division of the Dining Services offers banquets, receptions, beverage services, and special dining assistance as requested by groups utilizing the University Center or other campus facilities.

# Student Involvement

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## STUDENT GOVERNMENT

The organs of student government on The University of Texas at Arlington campus are the Student Congress, constituent councils, Student Activities Board, student representatives on various University committees, the Student Judicial Board, and student organizations. The Student Congress is the official means whereby a student can express views to the student body, the faculty, and the administration. It is composed of elected members who work in conjunction with various committees. Each fall and spring, elections are held by the student body. For further information visit the Student Congress office in the Hereford University Center or contact the Office of the Vice President for Student Affairs.

## ACTIVITIES AND ORGANIZATIONS

UTA recognizes that a balanced program of activities which provides an opportunity for the expression and development of student interests will both stimulate a student academically and aid in all-round growth as an individual.

The varied activities of student organizations and the all-campus programs centered in the Hereford University Center provide the major means through which students may give expression to their talents, develop worthwhile skills, and improve their knowledge of the principles and processes by which democracy works. On the UTA campus there is a registered student organization to meet nearly every student's needs. Students are encouraged to enter activities in organized student life both for personal value and for the unique contribution each student can make to the campus community.

The Student Activities Board (SAB) plans programs for the UTA community. Through its various councils, SAB plans programs which are cultural, recreational, educational and social in nature and which help to make a student's free time a valuable part of his/her education. All students are invited to join one or more of the SAB councils which schedule art shows, contemporary entertainment, performing arts events, trips, fashion shows, films, speakers, video programs and events centered around campus traditions. The Activities & Organizations Office is in Room B-13 of the University Center.

The University encourages organizations whose purposes further co-curricular interests in literary, musical, professional, and social fields. All students are urged to participate in the activities of one or more of the recognized clubs or societies. Each student organization is governed by a constitution and is subject to regulation by the policies of the Committee on Student Organizations administered by the Vice-President for Student Affairs through the offices of staff members in the several departments of the Student Affairs Division.

These groups include scholastic honor societies, departmental and pre-professional societies, service clubs, religious groups, special interest groups, residence councils and social fraternities and sororities. Detailed information about this phase of campus life is available in the Activities and Organizations Office located in Room B-13 of the University Center.

## SCHOLASTIC HONOR SOCIETIES

A chapter of Alpha Chi, national honor society, has as its requirements for membership a 3.5 grade point average (on 4.0 scale) and junior or senior standing.

### Accounting

Beta Alpha Psi, a national professional organization, encourages and gives recognition to scholastic excellence among students of accounting, and attempts to foster high moral and ethical standards and to cultivate a sense of responsibility and service in its members. Membership is by election and is limited to students of high scholarship and of good moral character. Minimum scholastic requirements for membership include a grade point average of 3.1 in accounting courses and 2.9 overall, or 3.0 in the last 60 hours or 3.25 in the last 30 hours. Members-elect must have completed 12 hours of accounting, or have completed nine hours and be enrolled for three.

## **STUDENT INVOLVEMENT**

### **Aerospace Engineering**

The aerospace engineering honor society, Sigma Gamma Tau, recognizes scholastic achievement in the field. Minimum membership requirements are at least a 3.0 overall average. A junior must be in the upper quarter of the aerospace engineering class and a senior must be in the upper one-third to be eligible for consideration for membership. The computation of scholastic achievement and class standing shall include the student's complete academic record at the time of eligibility for membership.

### **Business Administration**

Beta Gamma Sigma encourages and rewards scholarship and accomplishment among students of business administration, promotes the advancement of education in the art and science of business, and fosters integrity in the conduct of business operations. Membership is by faculty invitation and is limited to those of high scholarship and of good moral character, and who rank in the upper 10 per cent of their graduating class. Juniors who rank in the upper five per cent of their class may also be elected to membership in the last semester of their junior year.

### **Computer Science and Engineering**

The Gamma Chapter of Upsilon Pi Epsilon, national honor society for the computer sciences, recognizes outstanding scholastic and professional achievement in the field of computer science. Election to membership is open to all undergraduate students who have completed at least 64 semester hours of college work including 18 semester hours of computer science courses. Students must have attained a general overall scholarship rating of not less than 3.0 with a 3.25 in computer science.

### **Civil Engineering**

The national honor society of civil engineering, Chi Epsilon, recognizes the characteristics deemed to be fundamental to the successful pursuit of an engineering career, and aids in the development of those characteristics in the civil engineering student. A student must be at least a junior and in the upper one-third of the civil engineering class to be eligible for membership.

### **Earth Sciences**

The Beta Omega Chapter of Sigma Gamma Epsilon, national honor society for earth sciences, was organized to increase interest in those sciences. To be eligible for membership a student must have completed 14 hours of earth science courses with a B average and have a C-plus average overall.

### **Economics**

The Mu Chapter of Omicron Delta Epsilon, honor society in economics, recognizes scholastic attainment and establishes closer ties between students and faculty. Undergraduate candidates for election to membership must have an overall grade point ratio of 3.0 (on 4.0 scale) and at least 12 hours in economics with a grade point ratio of 3.0 or better. Graduate students are judged solely on graduate work and must have a grade point ratio of better than 3.0, and are eligible after completing one semester of full-time work.

### **Education**

Kappa Delta Pi, national honor society in education, recognizes those students who have achieved academic excellence. The society promotes high scholastic attainment, development of high personal standards, and increased study and research in education and related fields. Membership is open to students who have attained junior standing, have an overall grade point average of 3.0 or higher, and have expressed the intention to continue in the field of education.

### **Electrical Engineering**

Electrical engineering majors who rank scholastically in the upper one-fourth of their junior class or the upper one-third of their senior class are considered for membership in the Epsilon Mu Chapter of Eta Kappa Nu, national scholastic honorary fraternity.

### **Engineering**

The Tau Beta Pi Association, a nationally recognized engineering association, has established a student chapter at UTA, known as Eta of Texas. This honor society recognizes those engineering students who have attained distinguished scholarship and have exhibited exemplary integrity. Stu-



dents who are second semester juniors and rank in the upper eighth of their regular engineering class and seniors who rank in the upper fifth of their regular class are generally eligible for membership.

### English

Mu Theta Chapter of Sigma Tau Delta, the national honorary society of English majors, recognizes scholastic distinction. Its programs encourage the reading of great literature and the writing and speaking of effective English. The minimum prerequisite for membership is junior standing with an average of B in English and a general academic average of B. The Mu Theta Chapter makes two annual awards: the Junior Sigma Tau Delta Award and the Senior Sigma Tau Delta Award.

### Finance

The Financial Management Association national honor society encourages and rewards scholastic achievement in the study of managerial finance, investments, and financial institutions and markets. The society encourages and promotes professionalism and integrity in business conduct. Membership is by election and is limited to graduate and undergraduate students of high academic achievement and good moral character. Minimum requirements include a grade point average of 3.0 in finance courses and 2.7 overall, completion of Finance 3313, enrollment in or completion of another upper level finance course, and at least 66 hours toward a BBA degree with a concentration in finance.

### Foreign Languages and Linguistics

The Iota Mu Chapter of Phi Sigma Iota, the foreign language national honor society, recognizes achievement in and promotes the study of all foreign languages and of linguistics. Membership is open to any undergraduate who has a grade point average of at least 3.0 and any graduate student who has a grade point average of at least 3.4; the student must have completed at least two advanced courses in the areas recognized.

### German

The Theta Pi Chapter of Delta Phi Alpha, a national German honorary society, recognizes scholastic distinction in German and promotes the study of the German language, literature, and civilization. Membership is open to any student with a B average who is registered in at least one advanced German course.

### History

The Omicron Kappa Chapter of Phi Alpha Theta is dedicated to improving and promoting historical research and encouraging cooperation between students and faculty engaged in the study or writing of history. Minimum membership requirements are at least 12 hours of history with a 3.1 history grade average and a 3.0 average in two-thirds of the remainder of a student's work. A student must be in the top 35 per cent of his/her class.

### Industrial Engineering

Alpha Pi Mu honorary society recognizes and honors students of industrial engineering for their academic achievement. The society is open to students of junior standing who are in the upper one-fifth of their industrial engineering class and to students in the upper one-third of their senior class.

### Mathematics

The Texas Iota Chapter of Pi Mu Epsilon, national mathematics honorary fraternity, promotes scholarly activity in mathematics. Members are elected from among faculty members in mathematics and related subjects and from eligible graduate and undergraduate students. Sophomores in the top quarter of their class are eligible if they are majoring in mathematics and have completed three semesters of college mathematics, including at least one semester of calculus, with As in all mathematics courses taken. Other undergraduate students who stand in the top third of their class overall are eligible after completing two years of college mathematics, including calculus, with at least a B average. Eligibility requirements for graduate students are similar to those for undergraduate students.

### Mechanical Engineering

Pi Tau Sigma honorary fraternity recognizes and honors students of mechanical engineering for their academic achievement. The fraternity is open to students of junior standing who are in the

## **STUDENT INVOLVEMENT**

upper 15 per cent of their mechanical engineering class and to students in the upper 20 per cent of their senior class.

### **Music**

Phi Mu Alpha Sinfonia is the professional fraternity in all areas of music, encouraging and promoting high standards of creativity, performance, education, and research in music. Membership requires a B average overall.

Sigma Alpha Iota is an international professional fraternity for women in music, promoting high ideals in musical education. Membership requires a B average overall with a B-plus in music.

Kappa Kappa Psi, national honorary band fraternity for men, recognizes band students for scholarship, leadership, and service. Membership requires a B average overall.

Tau Beta Sigma, national honorary band fraternity for college women, recognizes band students for scholarship, leadership and service. Membership requires a B average overall.

### **Nursing**

The Delta Theta Chapter of Sigma Theta Tau, national honor society for nursing, recognizes individuals who have demonstrated superior scholastic achievement, evidence of professional leadership potential, and/or marked achievement in the field of nursing. Invitations are extended to eligible students in the undergraduate program who have completed at least one-half of the required curriculum, have at least a 3.0 grade point average, and meet at a high level the other qualifications for membership. Faculty members and graduate nurses who have demonstrated marked achievement in the field of nursing are eligible for invitational membership.

### **Physics**

A campus chapter of Sigma Pi Sigma, national honor society, was organized to stimulate additional interest in physics and develop professional pride in those members elected to the society. Membership requirements for undergraduate students are completion of six hours of physics beyond the introductory courses, a 3.0 grade average overall, and a 3.0 average for all physics courses attempted. Graduate students are eligible upon completion of nine hours of course work acceptable for graduate credit at UTA.

### **Psychology**

Psi Chi is the national honor society in psychology for the purpose of encouraging, stimulating, and maintaining scholarship in, and advancing the science of, psychology. Membership is open to graduates and undergraduates who are making the study of psychology one of their major interests and who have a 3.2 grade average overall.

### **Sociology**

Alpha Kappa Delta honorary fraternity recognizes students majoring in sociology with grade point averages of B or better in undergraduate upper-division work. Graduate student sociology majors are particularly encouraged to join Alpha Kappa Delta.

### **Spanish**

The Zeta Alpha Chapter of Sigma Delta Pi, national Spanish honorary society, stimulates interest in the Spanish culture and in increased use of the language. The group also presents speakers on Spanish history and culture. Membership is open to any student with a B average who has taken at least one advanced Spanish course.

### **Systems Analysis/Management Science**

The purpose of the Nu Chapter of the national honorary society Alpha Iota Delta is to confer distinction for academic excellence in the areas of systems analysis and management science; promote the infusion of the functional and behavioral areas of administration with the tools, concepts, and methodologies of the decision science; and promote professional fellowship among students, faculty and administrators who share a common interest in the development of the decision sciences. Membership is limited to those of high scholarship and good moral character who have maintained at least a 3.0 grade point average, both overall and in upper-level decision science courses.

**FRATERNITIES AND SORORITIES**

Social, service, professional, and special interest groups, including national fraternities and sororities, are active on campus. Information concerning these groups is available from the Activities and Organizations Office.

Ten years ago, UTA began a National Greek system. Sixteen fraternities and nine sororities are active on campus. They are: Fraternities — Alpha Phi Alpha, Beta Theta Pi, Delta Tau Delta, Delta Upsilon, Kappa Alpha, Kappa Alpha Psi, Kappa Sigma, Omega Psi Phi, Phi Beta Sigma, Phi Delta Theta, Phi Gamma Delta, Pi Kappa Alpha, Pi Kappa Phi, Sigma Nu, Sigma Phi Epsilon, Delta Chi Colony.

Sororities — Alpha Chi Omega, Alpha Kappa Alpha, Alpha Phi, Delta Delta Delta, Delta Sigma Theta, Delta Zeta, Phi Mu, Zeta Phi Beta, Zeta Tau Alpha.

**MILITARY ORGANIZATIONS**

There are a number of organizations sponsored by the Department of Military Science which help prepare cadets as well as students outside the Cadet Corps to develop leadership, athletic, military and management skills. The organizations are divided into three categories:

**Military organizations open to all students**

The Sam Houston Rifles is an elite drill team which competes in collegiate drill meets across the nation.

The Insurgent Team is a unit organized to study patrolling and reconnaissance techniques.

**Athletic teams open to all students**

The UTA Rifle Team is a competitive collegiate rifle team.

The University Pistol Team is a competitive collegiate pistol team.

The Orienteering Team is a competitive collegiate team whose function emphasizes a combination of map-reading and cross-country running.

**Military organizations open to members of the Cadet Corps**

The Scabbard and Blade is a fraternal and service organization designed to increase the standard of military education in American colleges and universities.

The Officers' Christian Fellowship is an organization dedicated to independent and group Bible study.

**INTRAMURALS AND RECREATION**

Intramurals and Recreation offers activities ranging from team and individual sports to recreational events and free-play time. Facilities include the Activities Building (with handball and gymnastics areas, basketball courts, and an indoor jogging track), a tennis center (18 lighted courts), an athletic complex (six football fields, 12 softball fields, six soccer fields), two swimming pools, a bowling alley, and a games room. Information about participation is available in Room 212, Activities Building.

**INTERCOLLEGIATE ATHLETICS**

UTA students with valid ID cards are admitted without charge to all regular season home athletic contests. Free football tickets should be picked up prior to the games at either the Athletic Ticket Office at 710 South Davis or at the University Center Ticket Office. All home football games, and men's and women's track and field meets will be held in Maverick Stadium. Men's and women's home basketball games are played in Texas Hall; baseball and softball are played in the Athletic Complex at Fielder Road and Park Row; women's volleyball games are held in the Activities Building; men's and women's tennis matches will be played at the Tennis Center; and, rifle matches will be held in the Physical Education Building.

**Men's Athletics** — The men's intercollegiate teams representing UTA are members of the Southland Conference and the National Collegiate Athletic Association. Intercollegiate teams are fielded in the sports of baseball, basketball, cross country, football, golf, rifle, tennis, and track and field. Individuals interested in participating in the UTA athletic programs should contact the director of athletics.

**Women's Athletics** — The women's intercollegiate teams representing UTA are members of the Southland Women's Conference and the National Collegiate Athletic Association. Intercollegiate sports offered are basketball, cross country, softball, rifle, tennis, track and field, and volleyball. Individuals desiring information regarding opportunities for participation should contact the director of athletics at 710 S. Davis.

## **STUDENT INVOLVEMENT**

### **STUDENT PUBLICATIONS**

The **Shorthorn** is the official newspaper of the University community. It is published Tuesday through Friday during long semesters except on holidays and during examination weeks.

Funded by the student activity fee and advertising sales, the newspaper is distributed without charge to all students.

### **RELIGIOUS LIFE**

Off-campus religious organizations active in campus life include the Baptist Student Center, the Church of Christ Bible Chair, the Wesley Foundation for Methodist Students, the Arlington Ministries in Higher Education for students of the Christian and Presbyterian churches, the Canterbury Club for Episcopal students, the Newman Club for Catholic students, the Christian Science organization, the Association of Lutheran Students, the Bahai Club, the Voices of Christ Gospel Choir, the Hillel Society for Jewish students, and the Evangelical Non-denominational Bible Chair.

Although each group has been established primarily for the benefit of students belonging to its own church, all students are welcome. The activities include noon devotionals, study groups, discussion periods and varied recreational activities. Through these means, the centers develop in the individual student campus citizenship and spiritual growth. Arlington's churches of all denominations welcome the attendance of students.

### **MUSICAL ORGANIZATIONS**

The Music Department sponsors the University Singers, the A Cappella Choir, the Chamber Singers, and the Holiday Singers; the Marching Band, the Concert Band, a Wind Ensemble, and the Lab Band; an Opera Workshop; and the Orchestra. Membership is open to all students regardless of major field of study. Certain ensembles require an audition. A student will be exempt for one semester of required physical education for each semester of marching band completed (Fall Semester).

A student may enroll without special permission for one of these organizations in excess of the semester hours prescribed in the catalog for the major field.

### **STUDENT DISCIPLINE**

By enrolling in the University, a student neither loses the rights nor escapes the responsibilities of citizenship. All students are expected to comply with state and federal law, the **Rules and Regulations of the Board of Regents of The University of Texas System**, the UTA regulations, and instructions issued by a University administrative official in the course of his/her duties.

When a student violates the prescribed codes of behavior, disciplinary action may be initiated through the Discipline Coordinator, Davis Hall, Room 252.

Information about the rules of conduct, due process procedures and disciplinary penalties is published in the **Rules and Regulations of the Board of Regents of The University of Texas System**, and the **Handbook of Operating Procedures of The University of Texas at Arlington**. Copies of these documents are in the Office of the Vice President for Student Affairs.

### **ACADEMIC DISHONESTY**

All students are expected to pursue their academic careers with honesty and integrity. Academic dishonesty includes, but is not limited to, cheating on a test or other course work, plagiarism (offering the work of another as one's own) and unauthorized collaboration with another person. Students found guilty of dishonesty in their academic pursuits are subject to penalties which may include suspension or expulsion from the University.

Institutional procedures regarding charges of academic dishonesty are outlined in Part II, Chapter 2, of the **Handbook of Operating Procedures of The University of Texas at Arlington**. Copies of the Handbook are available at more than 75 locations on campus including the Student Congress office, the Library, and departmental offices.

### **GRIEVANCES OTHER THAN GRADES**

In attempting to resolve any student grievance, it is the obligation of the student first to make a serious effort to resolve the matter with the individual with whom the grievance originated. Grievances involving matters other than grades are appealed to the department chairman or office director, the academic dean if appropriate, then to the Vice-President for Business Affairs, Vice-President for Academic Affairs, or Vice-President for Student Affairs. If the matter remains unresolved at this

level, the student may make a final appeal to the President. (For grievances involving grades, see instructions in Academic Regulations section.)

**IDENTIFICATION CARDS**

Students are strongly urged to retain possession of their identification cards at all times in view of the fact that misuse of University identification is an offense which subjects students to discipline. Those lending their identification cards for fraudulent purposes, as well as those making use of them, will be disciplined.



# Degree Program

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## DEGREE PLAN PROCEDURE

It is the responsibility of the student to request preparation of a degree plan through the chairman of the major department during the semester following the completion of 45 semester hours of credit. A transfer student who has at least 45 semester hours of credit is responsible for initiating degree plan procedure during the first semester registered at The University of Texas at Arlington.

No deviation from a degree plan will be permitted except with the approval of the academic dean and the chairman of the major department. The student has the right to appeal negative decisions to the Vice President for Academic Affairs.

The Office of the Registrar will be responsible for determining when the student has met the requirements for graduation.

## GENERAL REQUIREMENTS FOR A BACHELOR'S DEGREE

The University requires certain courses for each degree. These are:

<b>English</b>	9 hours for engineering majors 12 hours for all other majors
<b>*History</b>	6 hours of American history or 3 of American and 3 of Texas history
<b>*Political Science</b>	6 hours covering U.S. and Texas Constitutions
<b>Mathematics</b>	6 hours
<b>**Science</b>	6 hours (with laboratory)
<b>Physical Education, Military Science, or Marching Band</b>	4 semesters
<b>Outside Electives</b>	9 hours in Colleges of Business Administration and Science 6 hours in College of Engineering

**\*Required by state law.**

**\*\*Science requirements are met by courses in biology, chemistry, geology, or physics, as specified by the major departments in their degree plans, and must include the minimum number of hours in laboratory courses, as required by the University.**

The Bachelor of Arts Degree requires credit for 12 hours of science, six of which must be in one science with laboratory, and 14 hours in a single foreign language.

An international student whose secondary education was taught in his/her native tongue (other than English) may meet the foreign language requirement for the Bachelor of Arts degree by successfully completing six additional hours in English beyond the core requirement. The eight additional hours needed to fulfill the total degree requirements must be approved by the student's major department and must be included in the degree plan. The major department has the right to stipulate the foreign language permitted for the bachelor's degree, provided the language is taught at UTA.

The degree requirements for graduation in specific divisions of the University are explained at the beginning of each division in the catalog. In addition:

- (1) Each candidate for a degree must complete and receive credit in residence\* for:
  - a. at least 30 semester hours;
  - b. at least 24 of the last 30 semester hours needed for a bachelor's degree;
  - c. at least 18 semester hours of advanced course work (courses numbered 3000 and 4000), to include 12 hours of advanced courses in the major subject.

**\*The term "In residence" is defined as in residence at the (UT System) component which ultimately grants the degree. Residence credit does not include courses taken by extension or correspondence.**

- (2) Successful completion of a course of study prescribed by the major department, including a minimum of 36 advanced hours, is required for a degree at UTA. Courses numbered with a first digit of 3 or 4 are classified as advanced courses.
- (3) A minimum overall grade-point average of 2.0 (C average) is required. In addition, a minimum grade-point average of 2.0 in the major is required. (The College of Business Administration

requires a 2.0 overall grade-point average, 2.0 on all course work taken in the college, and 2.0 within the major and concentration area for those majors having a concentration.)

- (4) No more than 30 of the semester hours required for any degree may be completed by correspondence and/or extension.
- (5) Only the required four semesters of physical education activity courses may be counted for graduation. Additional activity courses taken will not be calculated in the student's grade-point average.
- (6) Graduate courses (numbered 5000 and above) cannot be used to fulfill undergraduate degree requirements.
- (7) To qualify for a second bachelor's degree, a student must complete all the degree requirements as stated in the Catalog for that degree and must complete no fewer than 30 semester hours beyond those of the bachelor's degree program requiring the greater number of hours. The additional hours must be taken in residence at UTA.

### GRADUATION PROCEDURES

Graduation ceremonies are held at the conclusion of each Spring and Fall Semester. A student who graduates at a time when there is no commencement exercise may participate in the next scheduled ceremony by filing a written notice with the Registrar's Office when degree requirements are completed.

All candidates are urged to attend the commencement ceremony at which their degrees are conferred.

A resident student must apply for the degree by filing the application with the Office of the Registrar, preferably prior to registration for the final semester. A student who is eligible to graduate at the end of the Fall or Spring Semester must make application no later than two months before the end of the semester. A summer candidate must make application no later than one month prior to the end of the final summer semester.

A student who completes degree requirements at another institution must file an application for graduation no later than two months prior to the graduation date of the semester in which he/she plans to graduate. An official transcript listing the courses completed must be received by the Registrar's Office by a date designated by the office. Failure to comply with these conditions may require the student to register in the following semester to be certified for graduation.

A graduation fee is charged.

### GRADUATION WITH HONORS

In each undergraduate school or college honors shall be awarded to graduating seniors whose grade-point averages equal or surpass those of the top 10 per cent of the graduating classes of that school or college for the previous three years. Those graduating seniors whose grades are equal to the top two per cent will receive highest honors; those with records equal to the next three per cent will receive high honors; and those equal to the following five per cent will be graduated with honors. Each Fall Semester the Office of the Registrar will publish the required grade-point averages for each of the categories of honors for that academic year.

For determination of honors, the averages are based on all work attempted. A student who has attended another college may qualify for honors if the following conditions are met: (1) At least 60 semester hours must be completed at UTA; (2) all work attempted at UTA must meet its standards for honors.

### HONORS PROGRAMS

The College of Liberal Arts offers a program which allows academically superior students an opportunity to broaden their intellectual horizons; to explore more intensively their major field; to integrate a multiplicity of areas of knowledge; and to learn and apply techniques of independent research. At the option of any department in the College of Liberal Arts, any course listed in the Liberal Arts portion of the catalog or a section of any course may be made available for honors credit. This Honors Program is fully described in the Liberal Arts portion of the catalog.

The Departments of Chemistry and Psychology of the College of Science also offer Honors Programs. Please consult the Chemistry and Psychology sections of the catalog for details.

### GRADUATION UNDER A PARTICULAR CATALOG

A student may obtain a degree according to the course requirements for a degree of the catalog under which he/she first entered the University provided the courses are being offered; or, a student

## **DEGREE PROGRAM**

may choose to graduate under the course requirements in effect during any subsequent year in which he/she is registered, provided the courses are offered. A student entering for the first time in the Summer Session may obtain a degree according to the course requirements of the catalog of the previous long session or the next long session. The above provisions, however, are subject to the restriction that all requirements for a degree must be completed in eight years from the date of the catalog chosen and that the courses are still offered.

A student may graduate under the current catalog.





# PROFESSIONS

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## Health Professions

### REQUIREMENTS

In general, medical and dental school admission committees do not state a preference about an undergraduate major field, leaving the student free to choose a degree program suited to special abilities and interests. Therefore, the student may choose any major, after conferring with an advisor, as long as the minimum requirements stated by the professional schools are met.

Admission requirements for The University of Texas Medical and Dental Schools are:

**English:** One year of college English.

**Biology:** Two years, as required for college science majors; one year must include formal laboratory work.

**Mathematics:** One-half year of college calculus. Mathematics is not required for admission to dental school.

**Physics:** One year, as required for college science majors.

**Chemistry:** One year of general chemistry and one year of organic chemistry, as required for college science majors, including the corresponding laboratory experience.

**Test:** New Medical College Admission Test (New MCAT) or Dental Aptitude Test (DAT) as required.

These requirements are representative of admission requirements for most other American medical and dental schools.

### HEALTH PROFESSIONS COUNSELING AND ADVISING

Health Professions Counseling and Advising Center, located in 114 Life Science Building, provides counseling for students interested in health careers. All pre-medical, pre-dental, and pre-allied health students should contact the office and start a file with the health professions counselor upon entering the University. The services provided include preadmission counseling, recruitment and admission, career advisement, and placement assistance into professional schools. In addition, numerous career materials including catalogs, applications, and testing information are available in 114 Life Science Building. The health professions counselor coordinates the Health Professions Advisory Committee's evaluation required of each pre-medical and pre-dental student before applying to professional school. Students applying to professional schools should contact the health professions counselor at least one year prior to making application.

## The Legal Profession

Law schools do not in general recommend any major field as preferred for undergraduate preparation. Consequently, the pre-law student is free to choose the degree program that best suits his/her interests and abilities. The student who desires a pre-law education should choose a major and consult the pre-law advisor in the major department early in his/her undergraduate career. Law schools do not customarily list required courses. It is recommended, however, that the student choose courses from among those offered in

English, literature, and speech  
American and English history  
Economics  
Political science  
Criminal Justice  
Sociology  
Philosophy, logic, and  
scientific method

Latin  
Mathematics  
Psychology  
Accounting  
Business Administration  
The sciences.

# Graduate Admission

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## ADMISSION TO THE GRADUATE SCHOOL

All correspondence concerning admission to The University of Texas at Arlington Graduate School should be addressed to the Dean of the Graduate School. Applications for admission must be made on the official form, available upon request from the Office of the Registrar and from the Dean of the Graduate School. International applicants to the Graduate School are required to pay an application evaluation charge of US\$25. In addition to the following requirements, most departments recommend that a potential applicant arrange a personal interview with the appropriate graduate advisor before applying to the Graduate School.

Each applicant for admission to the Graduate School must take, at his/her own expense, the Aptitude Test of the **Graduate Record Examination (GRE)** administered by the Educational Testing Service. The required aptitude test for the MPA and MBA programs is the **Graduate Management Admission Test (GMAT)**. The **Test of English as a Foreign Language (TOEFL)**, administered by the Educational Testing Service, is required of international students whose native language is not English and who do not hold a bachelor's or master's degree from an accredited U.S. institution. The test scores will be used, with other data, to determine eligibility for admission and to aid in counseling the applicant after admission. The GRE, the GMAT, and the TOEFL are given at various centers in the United States and in many other countries on at least four regularly established dates each year. Information bulletins and test application blanks for the GRE can be obtained from Educational Testing Service, Box 955, Princeton, New Jersey 08541, U.S.A. Information bulletins and test application blanks for the GMAT can be obtained from Educational Testing Service, Box 966, Princeton, New Jersey 08541, U.S.A. Information bulletins and test application blanks for the TOEFL examination can be obtained from the Test of English as a Foreign Language, Box 899, Princeton, New Jersey 08541, U.S.A., or in foreign countries from American embassies and consulates and offices of the United States Information Service. Bulletins and test applications for these tests may also be obtained from the Office of Counseling, Testing, and Career Placement at UTA. **Since applications must be received by Educational Testing Service two to four weeks in advance of each test, applicants should secure bulletins at least a month in advance of the test date.**

For admission to certain graduate programs, additional tests may be required. This information is given in the individual program listings in the graduate catalog.

An applicant who holds a bachelor's degree from UTA should apply to the Dean of the Graduate School at least 45 days prior to the beginning of the semester or summer session in which he/she wishes to register. An applicant whose degree or degrees are from some other American college or university should file an application, with the required official transcripts of all previous college work, at least 60 days prior to the beginning of the semester or summer session in which he/she plans to register.

**Admission** — To be eligible for consideration for admission to the Graduate School, an applicant must: (1) hold a bachelor's degree from an accredited university or its equivalent from a foreign university; (2) make a satisfactory score on the Graduate Record Examination or Graduate Management Admission Test, if required by the department or program to which application is being made; (3) have demonstrated through previous academic performance the potential for graduate work in his chosen field.

After evaluation of an applicant's credentials by the graduate advisor in the applicant's major area and by the Dean of the Graduate School, the applicant will be notified that (1) he has been accepted, (2) his application has been denied, or (3) that a decision has been deferred for reasons listed in the notice. For those who have been accepted for admission, a registration permit will be issued by the Dean of the Graduate School stating the conditions of admission and period of validity for the permit.

## PROCEDURE AFTER ADMISSION

After being admitted, the student should confer with the graduate advisor of the proposed major area, preferably by personal interview, in order to become acquainted with specific departmental regulations, particularly in the case of areas that require additional examinations upon entrance. After receiving registration materials, he/she should consult the graduate advisor in the proposed major area at the time and place indicated in registration instructions concerning the details of registration, course program, and other routine. **It is important that a student wishing to take courses for graduate credit consult with the appropriate graduate advisor before register-**

ing, as each student's program of work for an advanced degree must eventually be approved by the graduate advisor, the student's supervising committee and the Dean of the Graduate School. Failure to consult with the graduate advisor could result in the student enrolling for courses which would not be applied toward the degree.

**RESTRICTION ON ADMISSION**

Because there may be more applicants than facilities can accommodate, it may be necessary to limit the number of students accepted for graduate work in certain areas.

**GRADUATE PROGRAMS**

The University currently offers doctoral programs\* in:

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| <ul style="list-style-type: none"> <li>1. Administration                             <ul style="list-style-type: none"> <li>Areas of study:                                     <ul style="list-style-type: none"> <li>a. Business Administration</li> <li>b. Social Work</li> <li>c. Urban Affairs</li> </ul> </li> </ul> </li> <li>2. Aerospace Engineering</li> <li>3. Biomedical Engineering</li> <li>4. Chemistry</li> <li>5. Civil Engineering</li> <li>6. Computer Science</li> <li>7. Computer Science and Engineering</li> <li>8. Electrical Engineering</li> <li>9. Engineering Interdisciplinary</li> </ul> | <ul style="list-style-type: none"> <li>10. Engineering Mechanics</li> <li>11. Humanities                             <ul style="list-style-type: none"> <li>Areas of study:                                     <ul style="list-style-type: none"> <li>a. Linguistics and Languages</li> <li>b. Literature and Rhetoric</li> <li>c. Cultural Perspectives</li> </ul> </li> </ul> </li> <li>12. Industrial Engineering</li> <li>13. Materials Science</li> <li>14. Mathematical Sciences</li> <li>15. Mechanical Engineering</li> <li>16. Psychology</li> </ul> |
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Master's level programs are available in:

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|---|---|
| <ul style="list-style-type: none"> <li>1. Accounting</li> <li>2. Aerospace Engineering</li> <li>3. Architecture</li> <li>4. Biology</li> <li>5. Biomedical Engineering</li> <li>6. Business Administration</li> <li>7. Chemistry</li> <li>8. City and Regional Planning</li> <li>9. Civil Engineering</li> <li>10. Computer Science</li> <li>11. Computer Science and Engineering</li> <li>12. Criminal Justice</li> <li>13. Economics</li> <li>14. Electrical Engineering</li> <li>15. Engineering Mechanics</li> <li>16. English</li> <li>17. French</li> <li>18. Geology</li> <li>19. German</li> <li>20. History</li> <li>21. Humanities</li> </ul> | <ul style="list-style-type: none"> <li>22. Industrial Engineering</li> <li>23. Interdisciplinary Studies</li> <li>24. Landscape Architecture</li> <li>25. Linguistics</li> <li>26. Materials Science</li> <li>27. Mathematics</li> <li>28. Mechanical Engineering</li> <li>29. Nursing</li> <li>30. Physics</li> <li>31. Political Science</li> <li>32. Psychology</li> <li>33. Radiological Physics</li> <li>34. Social Work</li> <li>35. Sociology</li> <li>36. Spanish</li> <li>37. Urban Affairs</li> </ul> |
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**\*The program in chemistry leads to the Doctor of Science degree; all others are Doctor of Philosophy programs.**



# The School of ARCHITECTURE and ENVIRONMENTAL DESIGN

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The School of Architecture and Environmental Design offers programs leading to the following degrees:

- Bachelor of Science in Architecture
- Bachelor of Science in Interior Design
- Bachelor of Science in Landscape Architecture
- Master of Architecture
- Master of Landscape Architecture

The four-year Bachelor of Science degrees in architecture, landscape architecture, and architecture with the urban design/planning option are pre-professional programs. They provide opportunities for a diverse range of graduate and professional studies, including the Master of Architecture and Master of Landscape Architecture from the School of Architecture and Environmental Design. Refer to the graduate catalog for description and requirements of these degrees. The Bachelor of Science in Interior Design is an accredited professional degree.

All of the baccalaureate degrees are structured around a liberal arts curriculum balanced among the humanities and sciences with a core of studies in architecture and environmental design. A significant number of electives are provided in the pre-professional degrees to offer students flexibility to explore related disciplines or concentrate on specific areas of interest. Electives are offered allowing a student to accumulate up to 21 additional credit hours within the School of Architecture and Environmental Design.

The first two years (Basic Studies) consist of concomitant curriculum outlines which are conceptually the same for each degree. Basic Studies is built around a selection of courses from liberal arts and architecture which are structured to focus on an awareness of the environment and the environmental design professions with their interrelationships. A common base is developed with courses in history, design fundamentals, and graphic communication.

The third and fourth years (Major Studies) concentrate on furthering capabilities in the solution of design problems. The curriculum content at this level addresses the more specific requirements for each degree, while maintaining an interdisciplinary attitude.

It is the intent of the School of Architecture and Environmental Design to assist each student in determining the most appropriate strategy for progress through the undergraduate curriculum. Students are expected to consult the assistant dean, program directors, and faculty to discuss academic requirements, choice of electives, sequence of courses, and career objectives. Academic advising is required for each student for admission to registration.

## ARCHITECTURE

**Bachelor of Science in Architecture:** A program of studies designed as the first four years of a six-year professional degree. (See graduate catalog for Master of Architecture program, which is accredited by the National Architectural Accrediting Board.) The school is a member of the Association of Collegiate Schools of Architecture.

**Urban Design and Planning Option:** A program of studies concentrating on the physical environment relative to the broader context of planning and urban design issues. The intent of this program is to provide a broad-based curriculum leading to graduate studies in urban design or city and regional planning.

**Bachelor of Science in Interior Design:** A program of interior architecture concentrating on the immediate environment. The curriculum leads to a four-year professional degree. The program is accredited by the Foundation for Interior Design Education Research.

**Bachelor of Science in Landscape Architecture:** A program of studies in the uses of landscape and architectural forms and materials in the design of the exterior environment. It is designed to lead toward graduate studies in landscape architecture. (See graduate catalog for Master of Landscape Architecture program, an approved program leading to the UNE exam for licensing in Texas.)

### Transfer of Credits

The Dean, Assistant Dean, or Program Director will determine the application of transfer credit toward degree requirements. Students desiring to transfer credits into the design or design communication studio sequences must present examples of work to the school for acceptance of credits and placement in this sequence. The school may require further documentation or examination for students requesting transfer credit or substitution of courses within the major from schools not accredited by the National Architectural Accrediting Board.

### Entrance Requirements to Major Studies (3rd and 4th year)

Students wishing to enroll in courses within the School of Architecture and Environmental Design beyond the sophomore level (2000-numbered courses) must meet the following grade point requirements:

- (1) A minimum overall grade-point average of 2.0;
- (2) A minimum grade-point average of 2.0 for all course work taken from the School of Architecture and Environmental Design;
- (3) A minimum grade-point average of 2.0 for all courses taken within the declared degree or option;
- (4) Review and approval of portfolio by program committee.

### Student Projects

The school reserves the right to retain, copyright, use, exhibit, reproduce, and publish any work submitted by a student for course credit. Students are required to keep a record of all projects in advanced courses.



**REQUIREMENTS FOR BACHELOR OF SCIENCE DEGREE  
IN ARCHITECTURE**

<b>Architecture:</b>	1301, 1302, 2303, 2304, 2341, 2342, 2351, 2352, 3323, 3324, 3343, 3553, 3554, 4327, 4328, 4556, 4557.
<b>Landscape Architecture:</b>	3337.
<b>Art:</b>	Three hours studio (2000 level or above) approved.
<b>Behavioral Science:</b>	Six hours approved.
<b>Business:</b>	Six hours approved.
<b>English:</b>	1301, 1302, and six hours of literature.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	Six hours of American history or three hours of American and three hours of Texas history.
<b>Mathematics:</b>	1324, 1321, or substitute advanced mathematics. (No credit will be given for additional courses in the 1000 level.)
<b>Science:</b>	PHYS 1347, 1348.
<b>Electives:</b>	21 hours to include three hours of advanced architectural or art history. The remaining elective hours should be selected by the student with the advice and counsel of undergraduate advisors; nine of these hours must be advanced, with the advice and approval of an undergraduate advisor.
<b>Total:</b>	134 hours, of which at least 36 hours must be advanced, plus physical education, military science, or marching band as required.

***Suggested Course Sequence:***

**FRESHMAN YEAR**

**First Semester:** ARCH 1301; ENGL 1301; POLS 2311; MATH 1324; Behavioral Science elective, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 16 hours.  
**Second Semester:** ARCH 1302; ENGL 1302; POLS 2312; MATH 1321; Behavioral Science elective, 3 hours; Physical Education or Military Science — Total Credit 16 hours.

**SOPHOMORE YEAR**

**First Semester:** ARCH 2341; ARCH 2351; ARCH 2303; PHYS 1347; History, 3 hours; English (literature), 3 hours; Physical Education or Military Science or Marching Band — Total Credit 19 or 20 hours.  
**Second Semester:** ARCH 2342; ARCH 2352; ARCH 2304; PHYS 1348; History, 3 hours; English (literature), 3 hours; Physical Education or Military Science — Total Credit 19 or 20 hours.  
**Refer to catalog for Entrance requirements to Major Studies.**

**JUNIOR YEAR**

**First Semester:** ARCH 3553; ARCH 3343; ARCH 3323; Business elective, 3 hours; Elective, 3 hours — Total Credit 17 hours.  
**Second Semester:** ARCH 3554; LARC 3337; ARCH 3324; Business elective, 3 hours; Elective, 3 hours — Total Credit 17 hours.

**SENIOR YEAR**

**(Students must have an approved degree plan prior to registration for this year)**

**First Semester:** ARCH 4556; ARCH 4327; Art (studio), 3 hours; Electives, 6 hours — Total Credit 17 hours.  
**Second Semester:** ARCH 4557; ARCH 4328; Electives, 9 hours — Total Credit 17 hours.

## ARCHITECTURE

### REQUIREMENTS FOR BACHELOR OF SCIENCE DEGREE IN ARCHITECTURE (Urban Design/Planning Option)

<b>Architecture:</b>	1301, 1302, 2303, 2304, 2341, 2342, 2351, 2352, 3323, 3324, 3343, 3553, 3554, 4306, 4307, 4308, 4327, 4328, 4560.
<b>Landscape Architecture:</b>	3337, 4564.
<b>Behavioral Science:</b>	Six hours approved.
<b>Business:</b>	Six hours approved.
<b>English:</b>	1301, 1302, and six hours of literature.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	Six hours of American history or three hours of American and three hours of Texas history.
<b>Mathematics:</b>	1324, 1321. (No credit will be given for additional courses in the 1000 level.)
<b>Science:</b>	PHYS 1347, 1348.
<b>Electives:</b>	15 hours selected by the student with the advice, counsel, and approval of designed undergraduate advisor for this option. Nine hours must be advanced.
<b>Total:</b>	134 hours, of which at least 36 hours must be advanced, plus physical education, military science, or marching band as required.

#### ***Suggested Course Sequence:***

##### **FRESHMAN YEAR**

**First Semester:** ARCH 1301; ENGL 1301; POLS 2311; MATH 1324; Behavioral Science elective, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 16 hours.

**Second Semester:** ARCH 1302; ENGL 1302; POLS 2312; MATH 1321; Behavioral Science elective, 3 hours; Physical Education or Military Science — Total Credit 16 hours.

##### **SOPHOMORE YEAR**

**First Semester:** ARCH 2341; ARCH 2351; ARCH 2303; PHYS 1347; History, 3 hours English (literature), 3 hours; Physical Education or Military Science or Marching Band — Total Credit 19 hours.

**Second Semester:** ARCH 2342; ARCH 2352; ARCH 2304; PHYS 1348; (or Geology elective); History, 3 hours; English (literature), 3 hours; Physical Education or Military Science — Total Credit 19 hours.

**Refer to catalog Entrance Requirements to Major Studies.**

##### **JUNIOR YEAR**

**First Semester:** ARCH 3553; ARCH 3343; ARCH 3323; Business elective, 3 hours; Elective, 3 hours — Total Credit 17 hours.

**Second Semester:** LARC 3337; ARCH 3554; ARCH 3324; ARCH 4306; Elective, 3 hours; — Total Credit 17 hours.

##### **SENIOR YEAR**

**(Students must have an approved degree plan prior to registration for this year)**

**First Semester:** ARCH 4307; ARCH 4327; LARC 4564; Elective, 6 hours — Total Credit 17 hours.

**Second Semester:** ARCH 4308; ARCH 4328; ARCH 4560; Elective, 6 hours — Total Credit 17 hours.



**REQUIREMENTS FOR BACHELOR OF SCIENCE DEGREE  
IN INTERIOR DESIGN**

<b>Architecture:</b>	1301, 1302, 2303, 2304, 2341, 2342, 2351, 2352, 3323, 3343, 3553, 4325.
<b>Interior Design:</b>	3305, 3321, 3322, 3345, 3555, 4332, 4368, 4369, 4562, 4563.
<b>Art:</b>	Six hours studio (2000 level or above), approved. Three hours advanced history, approved.
<b>Behavior Science:</b>	Three hours approved.
<b>Business:</b>	Three hours approved.
<b>English:</b>	1301, 1302, and six hours of literature.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	Six hours of American history or three hours of American and three hours of Texas history.
<b>Mathematics:</b>	1324, 1321. (No credit will be given for additional courses in the 1000 level.)
<b>Science:</b>	PHYS 1347, 1348.
<b>Electives:</b>	Nine hours selected by the student with the advice, counsel, and approval of an undergraduate advisor.
<b>Total:</b>	134 hours, of which at least 36 hours must be advanced, plus physical education, military science, or marching band as required.

***Suggested Course Sequence:***

**FRESHMAN YEAR**

**First Semester:** ARCH 1301; ENGL 1301; History, 3 hours; MATH 1324; POLS 2311; Physical Education or Military Science or Marching Band — Total Credit 16 hours.

**Second Semester:** ARCH 1302; ENGL 1302; History, 3 hours; MATH 1321; POLS 2312; Physical Education or Military Science — Total Credit 16 hours.

**SOPHOMORE YEAR**

**First semester:** ARCH 2341, ARCH 2351; ARCH 2303; PHYS 1347; English (literature), 3 hours; Behavioral Science elective, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 19 or 20 hours.

**Second Semester:** ARCH 2342; ARCH 2352; ARCH 2304; PHYS 1348; English (literature), 3 hours; Business elective, 3 hours; Physical Education or Military Science — Total Credit 19 or 20 hours.

**Refer to catalog for Entrance Requirements to Major Studies.**

**JUNIOR YEAR**

**First Semester:** ARCH 3553; ARCH 3343; ARCH 3323; INTD 3321; INTD 3305; Total Credit — 17 hours.

**Second Semester:** INTD 3555; INTD 3345; INTD 3322; Art History, 3 hours; Elective, 3 hours; Total Credit — 17 hours.

**SENIOR YEAR**

**(Students must have an approved degree plan prior to registration for this year.)**

**First Semester:** INTD 4562; INTD 4368; ARCH 4325; Elective (art studio), 3 hours; Elective, 3 hours — Total Credit 17 hours.

**Second Semester:** INTD 4563; INTD 4369; INTD 4332; Elective (art studio), 3 hours; Elective, 3 hours — Total Credit 17 hours.

## ARCHITECTURE

### REQUIREMENTS FOR BACHELOR OF SCIENCE DEGREE IN LANDSCAPE ARCHITECTURE

<b>Architecture:</b>	1301, 1302, 2303, 2304, 2341, 2342, 2351, 2352, 3323, 3343, 3553.
<b>Landscape Architecture:</b>	3337, 3339, 3556, 4312, 4313, 4336, 4340, 4564, 4565.
<b>Art:</b>	Three hours studio (2000 level or above) approved.
<b>Behavioral Science:</b>	Six hours approved.
<b>Business:</b>	Six hours approved.
<b>English:</b>	1301, 1302, and six hours of literature.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	Six hours of American history or three hours of American and three hours of Texas history.
<b>Mathematics:</b>	1324, 1321. (No credit will be given for additional courses in the 1000 level.)
<b>Science:</b>	PHYS 1347 and an approved course in geology with lab.
<b>Electives:</b>	15 hours of electives, nine of which must be advanced, selected by the student with the advice and counsel of an undergraduate advisor.
<b>Total:</b>	134 hours, of which at least 36 hours must be advanced, plus physical education, military science, or marching band as required.

#### ***Suggested Course Sequence:***

##### **FRESHMAN YEAR**

**First Semester:** ARCH 1301; ENGL 1301; POLS 2311; MATH 1324; Behavioral Science elective, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 16 hours.

**Second Semester:** ARCH 1302; ENGL 1302; POLS 2312; MATH 1321; Behavioral Science elective, 3 hours; Physical Education or Military Science — Total Credit 16 hours.

##### **SOPHOMORE YEAR**

**First Semester:** ARCH 2341; ARCH 2351; ARCH 2303; History, 3 hours; PHYS 1347; English (literature), 3 hours; Physical Education or Military Science or Marching Band — Total Credit 19 or 20 hours.

**Second Semester:** ARCH 2342; ARCH 2352; ARCH 2304; History, 3 hours; GEOL elective, 3 hours; English (literature), 3 hours; Physical Education or Military Science — Total Credit 19 or 20 hours.

#### **Refer to catalog for Entrance Requirements to Major Studies**

##### **JUNIOR YEAR**

**First Semester:** ARCH 3553; ARCH 3343; ARCH 3323; LARC 3337; Business elective, 3 hours — Total Credit 17 hours.

**Second Semester:** LARC 3556; LARC 3339; Business elective, 3 hours; Electives, 6 hours — Total Credit 17 hours.

##### **SENIOR YEAR**

**(Students must have an approved degree plan prior to registration for this year.)**

**First Semester:** LARC 4564; LARC 4312; LARC 4336; LARC 4340; Electives, 3 hours — Total Credit 17 hours.

**Second Semester:** LARC 4565; LARC 4313; Art Studio elective, 3 hours; Electives, 6 hours — Total Credit 17 hours.



**SCHOOL OF ARCHITECTURE AND ENVIRONMENTAL DESIGN**

*Dean: Professor G. Wright*

*Professors Antoniadis, Buckley, Henderson, McDermott, Myrick*

*Associate Professors Boswell, Brooks, Duncan, Fabiano, Ferrier, Hamilton, Henry, Kuhner, McBride, Pinno, Price, Scherr, Spears, L. Wright*

*Assistant Professors DeJean, Elledge, Fontana, Gintole, Guy, Hermanovski, Maruszczak, Windham, Yardley*

*Adjunct Associate Professor Vidaud*

*Adjunct Assistant Professor Mikusek*

*Visting Assistant Professor Sacha*

*Instructor Fallis*

*Lecturers Dunaway, James, J. Johnson, W. Johnson, Turner*

**ARCHITECTURE (ARCH)**

**Basic Studies** (required for all SAED Bachelor of Science degrees)

**1301. INTRODUCTION TO ENVIRONMENTAL DESIGN I** (3-0) 3 hours credit — A study of the interrelationships between society, culture, and the built environment. **\$2 lab fee.**

**1302. INTRODUCTION TO ENVIRONMENTAL DESIGN II** (3-0) 3 hours credit — An introduction to architecture and the allied design disciplines of landscape architecture, interior design, urban design and planning, focusing on the interrelationships. **\$2 lab fee.**

**2303. HISTORY OF ENVIRONMENTAL DESIGN I** (3-0) 3 hours credit — An historical and analytical review of the art of architecture and environmental design with the physical, religious, social, economic, and political factors which shaped them from pre-history through the Middle Ages.

**2304. HISTORY OF ENVIRONMENTAL DESIGN II** (3-0) 3 hours credit — An historical and analytical review of the art of architecture and environmental design with the physical, religious, social, economic, and political factors which shaped them from the Renaissance to the present. Prerequisite: ARCH 2303.

## ARCHITECTURE

**2341. DESIGN COMMUNICATION I (2-4) 3 hours credit** — The development of visual perception and graphic communication utilizing an intensive investigation of freehand and descriptive drawing. Prerequisite: sophomore standing or permission of advisor. **\$2 lab fee.**

**2342. DESIGN COMMUNICATION II (2-4) 3 hours credit** — A continuation of ARCH 2341 with emphasis on refined technique and more complex drawing problems. An introduction of color media is included. Prerequisite: ARCH 2341 with a grade of C or better. **\$2 lab fee.**

**2351. BASIC DESIGN I (2-4) 3 hours credit** — An introduction to design and color theory utilizing lectures and studio exercises. Two and three dimensional studio exercises develop skills and sensibility to design fundamentals and vocabulary. The emphasis is on form, color, texture, and spatial determinants. Prerequisite: ARCH 2341 or concurrent enrollment. **\$2 lab fee.**

**2352. BASIC DESIGN II (2-4) 3 hours credit** — A continuation of ARCH 2351 with emphasis on three-dimensional design fundamentals with small-scale spatial and architectural applications. Prerequisite: ARCH 2351 with a grade of C or better, credit or concurrent enrollment in ARCH 2342. **\$2 lab fee.**

**Major Studies** (Refer to Entrance Requirements to Major Studies).

**3323. CONSTRUCTION MATERIALS AND STRUCTURAL CONCEPTS (3-0) 3 hours credit** — The nature of materials and structural concepts as used in the construction process. Prerequisite: junior standing in SAED.

**3324. STRUCTURES I (3-0) 3 hours credit** — An introduction to architectural structures related to construction materials, including statics and strength of materials. Prerequisites: ARCH 3323, PHYS 1347, MATH 1324, 1321.

**3343. DESIGN COMMUNICATION III (2-4) 3 hours credit** — An advanced course to develop visual sensitivity and awareness of graphic techniques to enable the student to study design ideas and present those ideas in the various environmental design disciplines. Emphasis on the relationship of communication skills with the design process. Prerequisites: ARCH 2342 and 2352 with a grade of C or better. **\$2 lab fee.**

**3553. DESIGN STUDIO: ARCHITECTURE I (3-6) 5 hours credit** — Design problems in the environmental design disciplines. Prerequisites: ARCH 2352 with a grade of C or better, ARCH 2303 and 2304, and credit or concurrent enrollment in ARCH 3323 and 3343. **\$2 lab fee.**

**3554. DESIGN STUDIO: ARCHITECTURE II (3-6) 5 hours credit** — A continuation of ARCH 3553. Prerequisites: ARCH 3343 and 3553 with a grade of C or better, and credit or concurrent enrollment in ARCH 3324 and LARC 3337. **\$2 lab fee.**

**4191, 4291, 4391, 4491, 4591, 4691. CONFERENCE COURSES** (Variable credit from 1 to 6 semester hours as arranged) — Independent study guided by an instructor on a regular basis. May be repeated for credit. Prerequisites: consent of the SAED and completion of or concurrent enrollment in a 3000-level SAED course.



**4195, 4295, 4395, 4495, 4595, 4695. SELECTED TOPICS IN ARCHITECTURE** (Variable credit from 1 to 6 semester hours as arranged) — Studio and lecture courses to explore and present selected topics in architecture and environmental design. May be repeated for credit as topics change. Prerequisite: consent of the SAED and completion of or concurrent enrollment in a 3000-level SAED course.

**4306. URBAN DESIGN THEORY** (3-0) 3 hours credit — Urban design theory, methodology, and implementation; contemporary and historic examples. Prerequisite: junior standing.

**4307. THEORY OF CITY PLANNING** (3-0) 3 hours credit — This course will focus on the theory and practice of the physical aspects of city planning and how it is linked to and impacts the social, economic, and political aspects of planning. Prerequisite: junior standing.

**4308. HISTORY OF URBAN FORM** (3-0) 3 hours credit — The history of urban form, considered as the product of political, economic, and social forces. Considers urbanism in the pre-industrial world, as well as urban form under the impact of industrialization, with particular attention paid to selected American cities. Prerequisites: ARCH 2303, 2304, and junior standing.

**4309. TWENTIETH CENTURY ARCHITECTURE** (3-0) 3 hours credit — Selected major and minor movements, designers and theorists in architecture and allied disciplines from 1900 to the present. Prerequisites: ARCH 2303 and 2304, and junior standing.

**4310. AMERICAN ARCHITECTURE** (3-0) 3 hours credit — A detailed consideration of the architecture of the United States from the 17th century to the present day, with special attention to the great and little masters of the field. Prerequisite: ARCH 2303 and 2304, and junior standing.

**4311. ARCHITECTURAL THEORY** (3-0) 3 hours credit — A review and analysis of the concepts, philosophy, ideology, and models that promulgated 20th Century architectural design. May be repeated for credit, as topic varies. Prerequisites: ARCH 2303, 2304, and junior standing.

**4314. HISTORIC RESTORATION AND PRESERVATION** (3-0) 3 hours credit — Concepts of historic preservation as expressed in legislation, institutions, and actual projects. Lectures and case studies designed to familiarize the student with methods of archaeological and bibliographic research, technical problems of conservation and restoration, and current problems in adaptive use of existing structures. May be repeated for credit. Prerequisite: junior standing.

**4315. SELECTED TOPICS IN ARCHITECTURAL HISTORY** (3-0) 3 hours credit — Lecture course to explore and present selected topics in architecture and environmental design of the Ancient Mediterranean, the Classical World, the Middle Ages, the Renaissance and Baroque, the 19th century, and Non-Western. May be repeated for credit as topics change. Prerequisites: ARCH 2303, 2304, and junior standing.

**4325. ENVIRONMENTAL CONTROL SYSTEMS** (3-0) 3 hours credit — Acoustics and illumination and their significance in the total design. Prerequisite: junior standing.

**4326. ENVIRONMENTAL CONTROL SYSTEMS** (3-0) 3 hours credit — Climate controls, mechanical and electrical systems, and their significance in the total design. Prerequisites: ARCH 4325 and junior standing.

**4327. STRUCTURES II** (3-0) 3 hours credit — A continuation of ARCH 3324 presenting the theory of structural design in timber and in structural steel. Prerequisite: ARCH 3324 with a grade of C or better, or CE 2311 and 3311 with a grade of C or better.

**4328. STRUCTURES III** (3-0) 3 hours credit — A continuation of ARCH 4327 presenting the theory of structural design in masonry and in reinforced concrete. Prerequisite: ARCH 4327 with a grade of C or better.

**4329. COMPUTERS AND ENVIRONMENTAL DESIGN** (3-0) 3 hours credit — The range and potential of digital computer applications in the environmental design professions. Prerequisite: junior standing.

**4330. ENERGY USE AND CONSERVATION IN ARCHITECTURE** (3-0) 3 hours credit — Concepts of the efficient use and conservation of energy and their embodiment in the built environment. Prerequisite: junior standing.

**4333. CONSTRUCTION METHODS AND ESTIMATING** (3-0) 3 hours credit — Construction methods and techniques, quantity calculations, and estimate of costs in place. Prerequisites: ARCH 3323 and 3324.

**4334. CONSTRUCTION MANAGEMENT** (3-0) 3 hours credit — Administrative and management techniques applied to the unique requirements of construction. Prerequisites: BLAW 3311, 3312, and 4320, or permission of instructor.

**4335. CONSTRUCTION SCHEDULING AND COST CONTROL** (3-0) 3 hours credit — Application of management processes and computer assisted calculations to the problems of scheduling construction performance, budgeting, and cost control. Prerequisites: CSE 1201 and ARCH 4333 or permission of instructor.

**4345. ARCHITECTURAL GRAPHICS** (2-4) 3 hours credit — Graphic and signage problems for interior and exterior environments. Visual identification programs will be developed. Materials and fabrication processes will also be addressed. Prerequisites: ARCH 3343 with grade of C or better, and junior standing in SAED or art. **\$2 lab fee.**

**4346. CONSTRUCTION DRAWINGS** (2-4) 3 hours credit — The techniques of building construction, the communication of technical information, and the process of preparing contract drawings for construction. Prerequisite: ARCH 3343 with a grade of C or better. **\$2 lab fee.**

## ARCHITECTURE

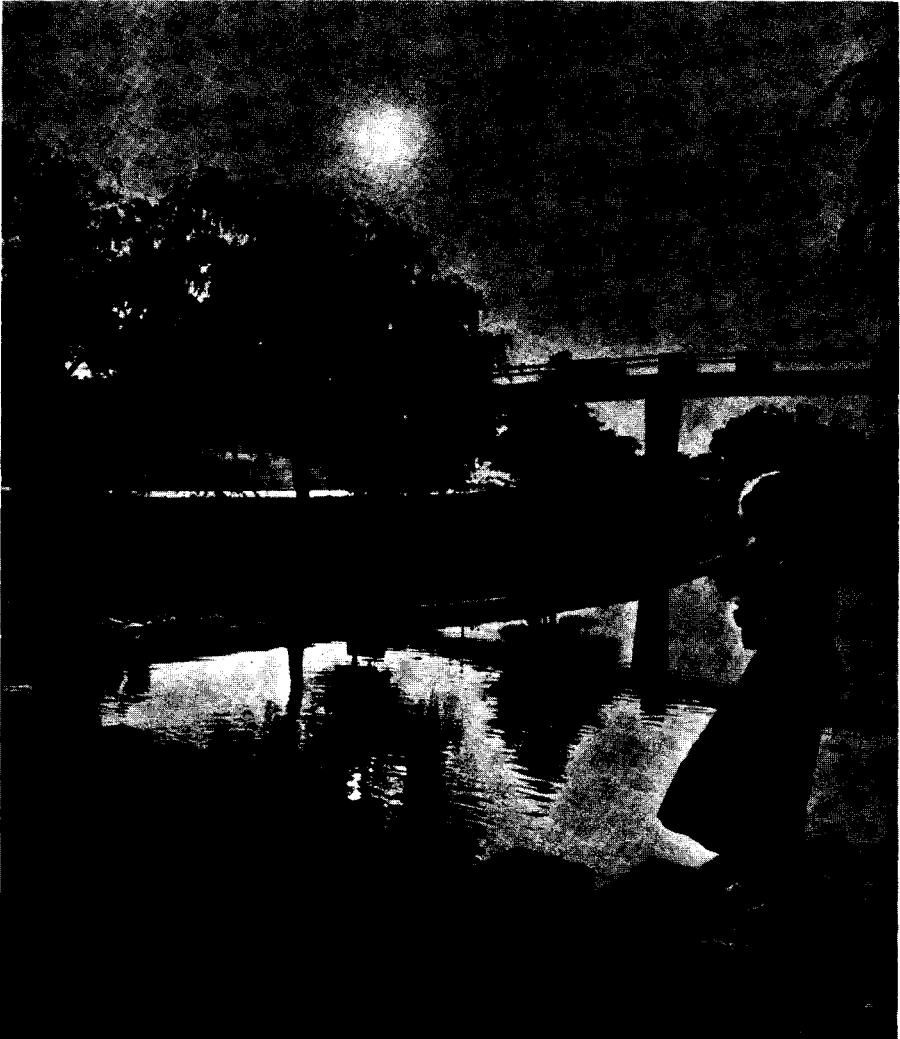
**4348. DESIGN COMMUNICATION IV (1-6)** 3 hours credit — Architectural investigation through the photographic medium. Direct research in the use of photography in design development, evaluation, and presentation. Prerequisite: ARCH 3343 with a grade of C or better. **\$2 lab fee.**

**4349. DESIGN COMMUNICATION V (1-6)** 3 hours credit — Architectural investigation through the photographic medium. The use of film medium as an investigative and presentation device in architecture. Prerequisite: ARCH 3343 with a grade of C or better. **\$2 lab fee.**

**4556. DESIGN STUDIO: ARCHITECTURE III (3-6)** 5 hours credit — Architectural design problems in programming, schematic organization, synthesis and design of buildings in their environmental context. Prerequisites: LARC 3337, ARCH 3343 and 3554 with a grade of C or better, ARCH 3324, and credit or concurrent enrollment in ARCH 4327. **\$2 lab fee.**

**4557. DESIGN STUDIO: ARCHITECTURE IV (3-6)** 5 hours credit — Advanced architectural design problems in programming, schematic organization, synthesis and design of buildings in their environmental context. Prerequisite: ARCH 4556 with a grade of C or better. **\$2 lab fee.**

**4560. DESIGN STUDIO: URBAN DESIGN/PLANNING (3-6)** 5 hours credit — The planning of complex urban networks of varying scale. Prerequisites: LARC 3337 and ARCH 3554 or LARC 4564 with a grade of C or better, ARCH 3324, and credit or concurrent enrollment in ARCH 4307. **\$2 lab fee.**

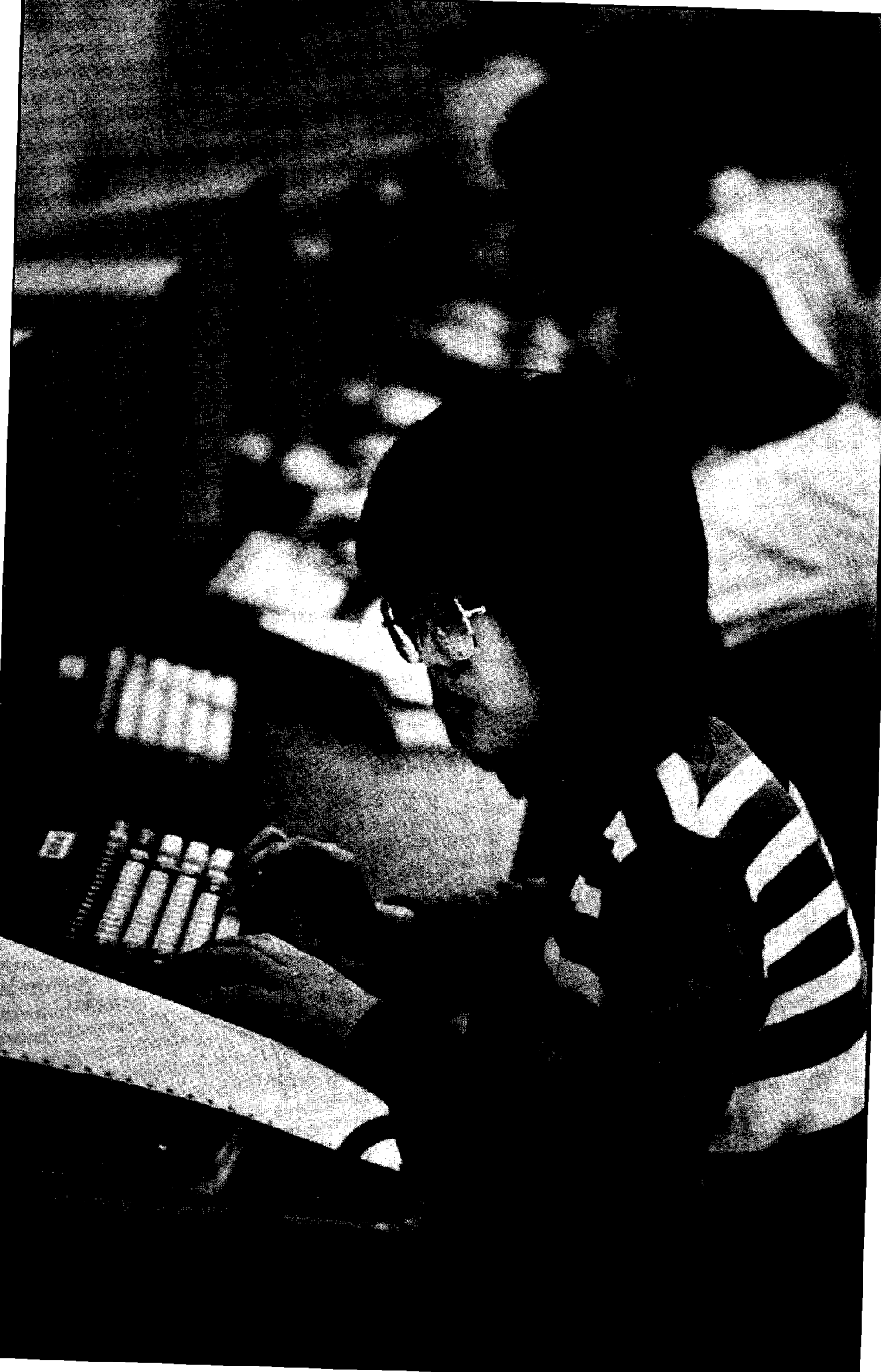


**INTERIOR DESIGN (INTD) (Refer to Entrance Requirements to Major Studies)**

- 3305. HISTORY OF INTERIOR DESIGN** (3-0) 3 hours credit — A historical and analytical review of interior spaces and furnishings throughout history, with emphasis on the post-medieval periods. Prerequisites: ARCH 2303 and 2304.
- 3321. INTERIOR MATERIALS** (3-0) 3 hours credit — The properties and applications of materials used in interior spaces. Prerequisite: junior standing in SAED or permission of advisor.
- 3322. INTERIOR MATERIALS** (3-0) 3 hours credit — A continuation of INTD 3321. Prerequisite: INTD 3321.
- 3345. DESIGN COMMUNICATION: INTERIOR DESIGN** (2-4) 3 hours credit — An advanced course to develop visual sensitivity and skills in graphic and media techniques for the study and presentation of interior design. Prerequisite: ARCH 3343 with a grade of C or better. **\$2 lab fee.**
- 3555. DESIGN STUDIO: INTERIOR DESIGN I** (3-6) 5 hours credit — The analysis, programming, and design of interior spaces. Prerequisites: ARCH 3343 and 3553 with a grade of C or better, ARCH 3323 and INTD 3321, and credit or concurrent enrollment in INTD 3345. **\$2 lab fee.**
- 4332. PROFESSIONAL PRACTICE: INTERIOR DESIGN** (3-0) 3 hours credit — Business procedures, contracts, and ethics essential to the profession. Prerequisite: junior standing in SAED.
- 4368. INTERIOR DESIGN AND DETAILING** (2-4) 3 hours credit — A studio course in interior detailing and the design of fixed furniture. Prerequisites: INTD 3322 and INTD 3555 with a grade of C or better. **\$2 lab fee.**
- 4369. FURNITURE DESIGN AND CONSTRUCTION** (2-4) 3 hours credit — A studio course in the design, detailing, and construction of movable furniture. Prerequisite: INTD 4368 or permission of advisor. **\$2 lab fee.**
- 4562. DESIGN STUDIO: INTERIOR DESIGN II** (3-6) 5 hours credit — A continuation of ARCH 3555. Prerequisites: INTD 3345 and 3555 with a grade of C or better, INTD 3322, and credit or concurrent enrollment in ARCH 4325 and INTD 4368. **\$2 lab fee.**
- 4563. DESIGN STUDIO: INTERIOR DESIGN III** (3-6) 5 hours credit. — A continuation of INTD 4562. Prerequisites: INTD 4562 with a grade of C or better, and credit or concurrent enrollment in INTD 4369. **\$2 lab fee.**

**LANDSCAPE ARCHITECTURE (LARC) (Refer to Entrance Requirements to Major Studies)**

- 3337. SITE DEVELOPMENT** (2-4) 3 hours credit — A study of natural systems and the site development process. Includes site planning relating to land use, siting of structures, circulation systems, and grading. Prerequisite: junior standing in SAED.
- 3339. LANDSCAPE PLANT MATERIALS** (2-4) 3 hours credit — The nature, identification, and requirements of ornamental plants. Covers shade and ornamental trees, shrubs and vines, flowers and ground covering materials. Prerequisite: junior standing in SAED.
- 3556. DESIGN STUDIO: LANDSCAPE ARCHITECTURE I** (3-6) 5 hours credit — Beginning concepts in landscape design. Studies in the development and management of exterior space. Prerequisites: ARCH 2342, 2352, with grade of C or better; 2303, 2304, and credit or concurrent enrollment in ARCH 3343 and LARC 3337.
- 4312. LANDSCAPE ARCHITECTURE:** (3-0) 3 hours credit — Landscape architecture theories, methods, and practice. Prerequisite: junior standing.
- 4313. HISTORY OF LANDSCAPE ARCHITECTURE** (3-0) 3 hours credit — A survey of the design of the exterior environment as an aspect of the social, cultural, and intellectual life of various historical periods. Prerequisites: ARCH 2304 and junior standing in SAED.
- 4336. LANDSCAPE PLANT MATERIALS II** (2-4) 3 hours credit — Further studies in the characteristics and potential of ornamental plants. Prerequisite: LARC 3339.
- 4340. LANDSCAPE CONSTRUCTION** (2-4) 3 hours of credit — A study of structural elements in the landscape and their application to landscape design. Prerequisite: credit or concurrent enrollment in LARC 3337.
- 4564. DESIGN STUDIO: LANDSCAPE DESIGN II** (3-6) 5 hours credit — Uses of landscape form and material with problems in the design of exterior environments emphasizing inter-relationships with architectural forms. Prerequisites: ARCH 3337 and 3556 with a grade of C or better, and credit or concurrent enrollment in LARC 3339. **\$2 lab fee.**
- 4565. DESIGN STUDIO: LANDSCAPE DESIGN III** (3-6) 5 hours credit — A continuation of LARC 4564. Prerequisites: LARC 4564 with a grade of C or better and credit or concurrent enrollment in LARC 4336 and 4340. **\$2 lab fee.**





# The College of BUSINESS ADMINISTRATION

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The Bachelor of Business Administration, Master of Business Administration, and Master of Professional Accounting programs of the College of Business Administration of The University of Texas at Arlington are fully accredited by the American Assembly of Collegiate Schools of Business.

## PHILOSOPHY

Teaching, research, and community service are the essential activities of the College of Business Administration. All three activities are aimed at enhancing the college's scholarly environment and strengthening relationships with the business community. The emphasis on excellence in the performance of these cornerstone activities enables the college to offer an outstanding business education to students over a broad spectrum of interest, age, and experience.

To be of lasting value, education for business, like education generally, must develop in its students the ability to engage in critical thinking, to project the future, and to relate effectively to others. First-rate business schools are inhabitants of the ever-expanding intellectual frontier of the American business world. Their mission is to seek out and foresee the inevitable changes ahead and, on occasion, even bring them about. They must report findings, not only to students but also to the leaders of business practice. Then they must draw on all relevant knowledge, as well as all the modern processes of thought and analysis, that will help the students to understand, and business leaders to master, the problems of change. The College of Business Administration strives to prepare the student for a lifetime career in professional management and the heart of that profession is the making of managerial decisions in a world of change.

The college is dedicated to the development of graduates who possess not only the skill and knowledge requisite for success in business, but also the wisdom and understanding which will enable them to become productive citizens. The college's program seeks to provide a firm base of liberal education consistent with that of any other professional preparation, to strive for adequate breadth within its own curriculum, and to maintain a continuing, lively in the Activities and Organizations Office located in with related fields. Effort is exerted to make the study of business a challenging intellectual adventure rather than a mere exercise in specialized techniques.

## OBJECTIVES

The college endeavors to offer a program which devotes a larger portion of its curriculum to study in the arts and sciences than is usual in business programs. Through such broad requirements, and through insistence on rigorous, analytical, and demanding accounting, business, and economics courses, the college aspires to provide its graduates with a personal philosophy of business which, while still evolving and flexible, is already reasonably articulate and coherent. It attempts to integrate the various disciplines, and the top teachers of these disciplines, into the pursuit of business studies

## **BUSINESS ADMINISTRATION**

and problems. Thus, for example, courses in organization and management which once consisted principally of the study of institutional structure and practice, now draw strongly on the behavioral sciences — psychology, anthropology, sociology — which underlie decision making. Efforts are being made to build into the program a study of the place of the business organization in the larger society in which it operates — the relationship of business to government, to the changing urban character of our country, and to the world at large. Finally, an attempt is made to enrich the treatment of such areas as accounting, management, finance, and marketing by a grounding in the environmental, mathematical, and behavioristic studies, all of which have obvious application to the solving of problems and the making of decisions in these areas.

### **PROGRAMS**

To attain these objectives, guidelines have been developed to provide minimum coverage of the basic areas of human knowledge and exposure to the fundamentals in each of the functional areas of business.

There are three major degree programs, each developed within the frame of reference described above. The first is the Bachelor of Business Administration Degree, with subject area concentrations in finance, management, management science, systems analysis, marketing, real estate, or economics. The BBA (Accounting) degree, while adhering to the basic philosophy outlined, permits a maximum 33 semester hour concentration in accounting. Thus, in addition to providing excellent preparation for management careers in industry, a student may also pursue professional objectives leading to careers in private, governmental, or public accounting. The BA (Economics) degree is the traditional liberal arts degree, oriented toward careers in teaching and research, government, or business. A BS degree in economics is also offered for the benefit of the student planning a career as a professional economist.

### **ADMISSION**

#### **BUSINESS/ACCOUNTING DEGREE PROGRAMS (BBA)**

In addition to the general admission requirements of the University as stated elsewhere in this catalog, admission to the Bachelor of Business Administration Program is dependent upon a student's completion of the following two groups of required courses with attainment of a minimum of a 2.25 grade point average in each group:

**Group 1: General Education Courses** — ENG 1301 and 1302, six hours of sophomore or upper division English courses, POLS 2311 and 2312, HIST 1311 and 1312, MATH 1315 and 1316, SPCH 1301, six hours of science with laboratory, and three hours of philosophy, art, or music.

**Group 2: — Lower Division Business Courses** — ACCT 2301 and 2302, ECON 2305 and 2306, BUSA 2301 (or a suitable substitute for specific degree programs), and BUSA 2303.

#### **ECONOMICS DEGREE PROGRAMS (BS and BA)**

The completion of 60 hours including all required freshman and sophomore accounting/business/economics courses, with attainment of a grade point average of 2.25 or better is required.

### **TRANSFER STUDENTS**

Transfer students will not be admitted to any degree program in the College of Business Administration until earning a cumulative grade point average 2.25 on a minimum of 12 hours of College of Business Administration Courses at UTA.

### **COOPERATIVE EDUCATION PROGRAM**

The College of Business Administration provides assistance in placing students in cooperative work experience programs with employers in the Dallas-Fort Worth area. Students are placed in positions which provide practical business experience related to their career and academic goals.

Two types of work/study arrangements are available to students — the Alternating Plan and the Internship. Under the Alternating Plan, the student alternates semesters of full-time employment and full-time college enrollment. Students are generally paired, so that while one student is enrolled in full-time study, the other is assigned to a position for full-time work. At the end of the academic semester, the students reverse their roles. Under the Internship program, the school/work pattern allows students to work part-time while attending classes full-time. A student applying for the program must have at least a 2.5 overall grade point average and be classified as a junior.

**GRADE-POINT REQUIREMENTS FOR GRADUATION**

In addition to meeting the credit hour and course requirements for a specific College of Business Administration degree program, the student must meet the following grade-point requirements:

- (1) A minimum overall grade-point average of 2.0;
- (2) A minimum grade-point average of 2.0 for all course work taken from the College of Business Administration; and
- (3) A minimum grade-point average of 2.0 for courses taken within the major and concentration area for those majors having a concentration.

**Liberal Arts Major/Business Administration Minor**

Liberal Arts majors planning to pursue a Master of Business Administration degree are advised to select a minor (18-24 semester hours) from the following courses: ACCT 2301, 2302, BUSA 2301, 2303, 3321, MANA 3319, MASI 3306, FINA 3313, MARK 3321, and ECON 2305, 2306. In addition, MATH 1315 and MATH 1316 are recommended to fulfill the mathematics requirement.

Completion of the above courses will allow the student, subject to normal graduate admission requirements, to reduce the foundation MBA program requirements. A student not completing all of the courses identified above will be required to enroll in the appropriate MBA foundation courses. All students minoring in business administration should consult with an undergraduate advisor in the College of Business Administration.

**Science Major/Business Administration Minor**

Science majors planning to pursue a Master of Business Administration Degree are advised to select a minor (18-24 semester hours) from the following courses: ACCT 2301, 2302, BUSA 2301, 2303, 3321, MANA 3319, MASI 3306, FINA 3313, MARK 3321, and ECON 2305, 2306.

Completion of the above courses will allow the student, subject to normal graduate admission requirements, to reduce the foundation MBA program requirements. A student not completing all of the courses identified above will be required to enroll in the appropriate MBA foundation courses. All students minoring in business administration should consult with an undergraduate advisor in the College of Business Administration.



# The Department of ACCOUNTING

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## REQUIREMENTS FOR A BACHELOR OF BUSINESS ADMINISTRATION DEGREE (Accounting Option)

Students must be currently meeting all lower division requirements before enrolling for upper division courses. Specified prerequisites are designed for certain courses. Waiver of either of the above will require consent of the instructor and approval of the Dean of the College of Business Administration.

<b>English:</b>	1301, 1302, and six hours of sophomore or upper division English courses.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Mathematics:</b>	1315, 1316.
<b>Behavioral Science:</b>	BUSA 2301 or three hours of psychology or sociology.
<b>Philosophy, Art, or Music:</b>	Three hours.
<b>Science:</b>	Six hours of science with laboratory.
<b>Speech:</b>	1301.
<b>Outside Electives:</b>	Nine hours outside the College of Business Administration.
<b>Bus. Admin.:</b>	2303, 3321, 3322, 4322.
<b>Bus. Law:</b>	3311, 3312.
<b>Marketing:</b>	3321.
<b>Finance:</b>	3313.
<b>Management:</b>	3319.
<b>Economics:</b>	2305, 2306, and six hours of junior or senior level economics electives.
<b>Accounting:</b>	2301, 2302, 3311, 3312, 3313, 3315, 4302, 4318, and six hours of accounting electives. All electives must be selected with the approval of an accounting advisor.*
<b>Business Electives:</b>	Six hours of advanced business, economics, and accounting electives of which not more than three hours may be in accounting. All electives must be selected with the approval of an accounting advisor.
<b>Total Hours:</b>	129 plus physical education or military science or marching band as required.

\*A grade of C or higher must be earned in each accounting course presented to satisfy the requirements for a degree with a major in accounting.

### CAREER OPTIONS

The following descriptions of specialties within the field of accounting, with a suggested sequence of accounting electives for each specialty area, is presented to assist in planning a degree program. A faculty advisor should be consulted before making final decisions relative to a degree program.

**Financial Accounting** — emphasizes preparation for a career in public accounting, including attainment of the Certified Public Accountant designation. Suggested electives: ACCT 4309, 4319, and three hours from 4301, 4313, 4314. Students following this sequence will also be well prepared for a career in accounting for business enterprises.

**Managerial Accounting** — emphasizes preparation for a career in accounting for business enterprises, government, or not-for-profit organizations. Preparation for either a Certified Management Accountant or CPA designation can be gained, depending on selection of courses from these electives: ACCT 4314, and six hours from 4301, 4309, 4313, 4319.

**Tax Accounting** — emphasizes preparation for a career in tax accounting in business enterprise, public accounting, or government; also appropriate for a tax-oriented legal career. Suggested electives: ACCT 4301, 4317, and 4319.

**Accounting Information Systems** — emphasizes preparation for a career in the design and implementation of information systems in business enterprise or in the management services division of a public accounting firm. Suggested elective: ACCT 4314. Students pursuing a program in information systems should include courses in Fortran, COBOL, and APL programming.

## **Suggested Course Sequence:**

### **FRESHMAN YEAR**

**First Semester:** ENGL 1301; HIST 1311; Science, 3 or 4 hours; MATH 1315; SPCH 1301; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 hours.

**Second Semester:** ENGL 1302; HIST 1312; Science, 3 or 4 hours; MATH 1316; Philosophy, Art, or Music, 3 hours; Physical Education or Military Science — Total Credit 16 or 17 hours.

### **SOPHOMORE YEAR**

**First Semester:** English (2000 or higher course), 3 hours; POLS 2311; ECON 2305; ACCT 2301; BUSA 2303; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 hours.

**Second Semester:** English (2000 or higher course), 3 hours; POLS 2312; ECON 2306; ACCT 2302; Outside Elective, 3 hours; Physical Education or Military Science — Total Credit 16 or 17 hours.

### **JUNIOR YEAR**

**First Semester:** ACCT 3311; ACCT 3313; BUSA 3321; FINA 3313; Economics Elective, 3 hours; BUSA 2301 or Sociology or Psychology, 3 hours — Total Credit 18 hours.

**Second Semester:** ACCT 3312; ACCT 3315; MARK 3321; BUSA 3322; MANA 3319; Economics Elective, 3 hours — Total Credit 18 hours.

### **SENIOR YEAR**

**First Semester:** ACCT 4302; Accounting Elective, 3 hours; BLAW 3311; Outside Electives, 6 hours; BUSA 4322 — Total Credit 18 hours.

**Second Semester:** ACCT 4318; Accounting Elective, 3 hours; BLAW 3312; Business Electives, 6 hours — Total Credit 15 hours.

## **ACCOUNTING (ACCT)**

*Chairman: Professor Ross*

*Professors Casler, Courtney, Imke, Snavelly*

*Associate Professors Cook, Dierks, Dunn, Solomon, Tsay, Witt*

*Assistant Professors Hall, Harris, Mark, McConnell, Walthier*

The objective of the Bachelor of Business Administration Degree with a major in accounting is to provide basic conceptual accounting and business knowledge as a foundation for career development. The program enables students to pursue professional opportunities in public practice, government, industry, financial institutions, and nonprofit organizations.

**2301. PRINCIPLES OF ACCOUNTING I (3-0)** 3 hours credit — A study of the accounting process and its informational output. Topics include financial accounting concepts, basic procedures, and the resulting reports. Emphasis is placed on the recognition and creation of accounting information as bases for decisions.

**2302. PRINCIPLES OF ACCOUNTING II (3-0)** 3 hours credit — A continuation of financial accounting and a study of managerial accounting concepts and techniques. Emphasis is placed on the development, presentation, analysis, and limitations of accounting information. Prerequisite: ACCT 2301.

**3303. ACCOUNTING FOR ENGINEERS (3-0)** 3 hours credit — The basic concepts and methodologies of financial accounting, cost accounting, cost control, and the use of accounting data as the basis for managerial decisions. Business and accounting majors may not take this course for credit.

**3305. FINANCIAL ACCOUNTING ISSUES (3-0)** 3 hours credit — Additional study designed to provide the non-accounting student with an understanding of current financial accounting issues. Prerequisite: ACCT 2302. Accounting majors may not take this course for credit.

**3310. TAX PLANNING AND FINANCIAL DECISIONS (3-0)** 3 hours credit — Designed primarily for those business students desiring a broad general understanding of tax laws and their implications for planning. Credit will not be given for both this course and ACCT 3315. Prerequisite: ACCT 2301. (Credit is not given to Accounting majors.)

## ACCOUNTING

- 3311. FINANCIAL ACCOUNTING I** (3-0) 3 hours credit — The environment of accounting, development of standards, basic theory, financial statements, worksheets, annuities and present value, investments, receivables, inventories, liabilities, plant assets, depreciation and depletion, and intangible assets. Prerequisite: ACCT 2302.
- 3312. FINANCIAL ACCOUNTING II** (3-0) 3 hours credit — Stockholders' equity, earnings per share, investments in bonds and stocks, equity method, revenue recognition, accounting changes, error analysis, income taxes, changes in financial position, and governmental accounting. Prerequisite: ACCT 3311.
- 3313. COST ACCOUNTING** (3-0) 3 hours credit — Concepts and purposes underlying the development and reporting of cost accounting information. Topics include job order costing, process costing, standard costs, and variance analysis. Prerequisite: ACCT 2302.
- 3315. FEDERAL INCOME TAX** (3-0) 3 hours credit — For accounting majors. The determination and taxation of income of individual taxpayers and partnerships at the federal level. The includability or excludability of various types of incomes such as salaries, dividends, interest, rentals, royalties, gains from sales of assets, and profits from individually owned businesses and partnerships. The federal tax law defining the limitations on the deductibility of costs and expenses of individuals and partnerships. Credit will not be given for both this course and ACCT 3310. Prerequisite: ACCT 2302.
- 4191, 4291, 4391. STUDIES IN ACCOUNTING** (Variable credit from 1 to 3 semester hours as arranged) — Advanced studies, on an individual basis, in various fields of accounting literature. May be repeated for credit. Prerequisite: consent of the instructor.
- 4195, 4295, 4395. SEMINAR IN ACCOUNTING** (Variable credit from 1 to 3 semester hours as arranged) — Readings and discussions of special topics in accounting. May be repeated for credit. Prerequisite: consent of the instructor.
- 4301. CORPORATE INCOME TAX** (3-0) 3 hours credit — The determination and taxation of taxable income of the corporate entity and the corporate shareholder. Social security taxes, returns and payment of taxes, and audits and refunds as they affect various taxable entities. Prerequisite: ACCT 3315.
- 4302. ACCOUNTING IN MANAGERIAL PLANNING AND CONTROL** (3-0) 3 hours credit — The role and development of management information. Emphasis on budgeting and on applications of computer systems within the firm. Prerequisites: ACCT 3313 and BUSA 2303 and 3321.
- 4309. ADVANCED FINANCIAL TOPICS** (3-0) 3 hours credit — Pensions, leases, price-level adjusted statements, current value statements, ratio analysis, full disclosure, multinational companies, segment reporting, interim statements, branches, estates and trusts, SEC reporting, regulated industries. Prerequisite: ACCT 3312. (Formerly ACCT 4312; credit will be granted only once.)
- 4313. ACCOUNTING THEORY** (3-0) 3 hours credit — The structure of accounting theory and its underlying concepts and standards. Emphasis on APB opinions and FASB statements. Prerequisite: ACCT 4309 or concurrent enrollment in ACCT 4309.
- 4314. ACCOUNTING SYSTEMS DESIGN** (3-0) 3 hours credit — Information systems for financial reporting and management control. Design principles for computerized accounting systems, with particular attention to the data entry, file structure, and report generation requirement of the controllership function. Prerequisites: ACCT 3313 and BUSA 2303.
- 4317. ESTATE, GIFT, AND TRUST TAXATION** (3-0) 3 hours credit — Taxation of estates and trusts, the federal estate tax on transfers of property of decedents, and the gift tax on lifetime transfers of property by taxpayers. Prerequisite: ACCT 3315 or consent of the instructor.
- 4318. AUDITING** (3-0) 3 hours credit — An introduction to auditing and the profession of accounting. Emphasizes generally accepted auditing standards; the acquisition, evaluation, and documentation of audit evidence; professional responsibilities; and auditor's reports and opinions. Prerequisites: ACCT 3312 and BUSA 3321.
- 4319. CONSOLIDATIONS AND PARTNERSHIPS** (3-0) 3 hours credit — Business combinations, consolidated financial statements, and partnerships. Prerequisite: ACCT 3312. (Formerly ACCT 4311; credit will be granted only once.)

# BUSINESS ADMINISTRATION

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The Bachelor of Business Administration Degree allows the student to choose options in Economics, Finance, Management, Management Science, Marketing, Real Estate and Systems Analysis. General business administration courses are found in this section of the catalog. Courses in regardless of major field of study. Certain ensembles departmental sections of the catalog. (Management Science courses are found in the Systems Analysis Department.)

## REQUIREMENTS FOR A BACHELOR OF BUSINESS ADMINISTRATION DEGREE (Economics, Finance, Management, Management Science, Marketing, Real Estate, and Systems Analysis Options)

Students must be currently meeting all lower division requirements before enrolling for upper division courses. Specified prerequisites are designated for certain courses. Waiver of either of the above will require consent of the instructor and approval of the Dean of the College of Business Administration.

<b>English:</b>	1301, 1302, and six hours of sophomore or upper division English courses
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Mathematics:</b>	1315, 1316.
<b>Behavioral Science:</b>	BUSA 2301 * or three hours of social or industrial psychology.
<b>Philosophy, Art, or Music:</b>	Three hours.
<b>Science:</b>	Six hours of science with laboratory.
<b>Speech:</b>	1301.
<b>Outside Electives:</b>	Nine hours outside the College of Business Administration.
<b>Core:</b>	ACCT 2301 and 2302; BLAW 3311; BUSA 2303, 3321, and 4322; ECON 2305 and 2306; FINA 3313; MANA 3319; MASI 3306; MARK 3321.

<b>Concentration and Electives:</b>	12 to 18 hours beyond the core requirement in one of the following areas of concentration: economics, finance, management, management science, marketing, real estate, or systems analysis. Three hours of accounting elective. Six hours of economics electives. * * 15 to 18 hours of advanced business electives selected from at least three areas of concentration excluding the primary area of concentration.
<b>Total Hours:</b>	129 hours, plus physical education or military science or marching band as required.

\*Students planning to attend Graduate School should enroll in this course.

\*\*Students planning to attend Graduate School should take ECON 3310 and 3312 in their undergraduate program of study.

### **Suggested Course Sequence:**

#### **FRESHMAN YEAR**

**First Semester:** ENGL 1301; HIST 1311; Science, 3 or 4 hours; MATH 1315; Speech, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 hours.

**Second Semester:** ENGL 1302; HIST 1312; Science, 3 or 4 hours; MATH 1316; Philosophy, Art, or Music, 3 hours; Physical Education or Military Science — Total Credit 16 or 17 hours.

## **BUSINESS ADMINISTRATION**

### **SOPHOMORE YEAR**

**First Semester:** English (2000 or above course), 3 hours; POLS 2311; ECON 2305; ACCT 2301; BUSA 2303; BUSA 2301 or Social or Industrial Psychology, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 19 or 20 hours.

**Second Semester:** English (2000 or above course), 3 hours; POLS 2312; ECON 2306; ACCT 2302; Outside Elective, 3 hours; Physical Education of Military Science — Total Credit 16 or 17 hours.

### **ECONOMICS OPTION**

The student concentrating in economics should be certain that he/she is meeting the requirements specified previously under the heading Requirements for a Bachelor of Business Administration Degree. Within the framework of these conditions, the economics concentration is limited to 21 hours in economics. This includes 15 hours of economics beyond the courses in principles of economics, ECON 2305 and 2306. ECON 3303, 3312 and 4311 are required. The remaining three hours of concentration may be selected from among the remaining economics offerings. Other required electives (accounting — three hours; business administration — 12 hours) should be selected with the advice of registration advisor.

#### **Suggested Course Sequence:**

### **JUNIOR YEAR**

**First Semester:** ECON 3303; ECON 3310; MARK 3321; BUSA 3321; Accounting Elective, 3 hours; BLAW 3311 — Total Credit 18 hours.

**Second Semester:** ECON 3312; FINA 3313; MANA 3319; MASI 3306; Advanced Business Electives, 6 hours — Total Credit 18 hours.

### **SENIOR YEAR**

**First Semester:** Economics Elective, 3 hours; Advanced Business Electives, 12 hours — Total Credit 15 hours.

**Second Semester:** BUSA 4322; ECON 4311; Outside Electives, 6 hours; Advanced Business Electives, 3 hours. — Total Credit 15 hours.

### **FINANCE OPTION**

The student concentrating in finance should be certain that he/she is meeting the requirements specified previously under the heading Requirements for a Bachelor of Business Administration Degree. Within the framework of these conditions a student is limited to a maximum of 21 hours in each of the concentration areas. For a concentration in finance a student would include 12 to 18 hours of finance beyond FINA 3313. FINA 3315, 3317, and 4315 are required. The balance of up to nine hours of concentration may be selected from among the remaining finance offerings.

The student concentrating in finance is also required to take ECON 3303 (Money & Banking). Other required electives (accounting — three hours; business administration — nine hours; economics — three hours) should be selected with the advice of registration advisor. The student is strongly encouraged to take a total of 12 hours of accounting.

#### **Suggested Course Sequence:**

### **JUNIOR YEAR**

**First Semester:** MANA 3319; Accounting Elective, 3 hours; BLAW 3311; BUSA 3321; ECON 3303; FINA 3313 — Total Credit 18 hours.

**Second Semester:** MARK 3321; Finance Elective, 3 hours; MASI 3306; Economics Elective, 3 hours; FINA 3315; Advanced Business Elective, 3 hours — Total Credit 18 hours.

### **SENIOR YEAR**

**First Semester:** FINA 3317; Finance Elective, 3 hours; Advanced Business Electives, 9 hours — Total Credit 15 hours.

**Second Semester:** FINA 4315; BUSA 4322; Advanced Business Elective, 3 hours; Outside Electives, 6 hours — Total Credit 15 hours.

### **MANAGEMENT OPTION**

The student concentrating in management should be certain that he/she is meeting the requirements specified previously under the heading Requirements for a Bachelor of Business Administration Degree. Within the framework of these conditions, a student is limited to a maximum of 21 hours in each of the concentration areas. For a concentration in management, a student would include 12



## BUSINESS ADMINISTRATION

to 18 hours of management beyond MANA 3319. MANA 3320 and 3323 are required. The balance of up to 12 hours of concentration may be selected from among the remaining management offerings.

The student concentrating in management is also required to take BUSA 4322. Other required electives (accounting — three hours; business administration — six hours; economics — six hours) should be selected with the advice of registration advisor.

### **Suggested Course Sequence:**

#### JUNIOR YEAR

**First Semester:** MANA 3319; Accounting Elective, 3 hours; BLAW 3311; BUSA 3321; Economics Elective, 3 hours; MARK 3321 — Total Credit 18 hours.

**Second Semester:** MANA 3320; MANA 3323; MASI 3306; Economics Elective, 3 hours; FINA 3313; Advanced Business Elective, 3 hours — Total Credit 18 hours.

#### SENIOR YEAR

**First Semester:** Management and Advanced Business Electives, 15 hours — Total Credit 15 hours.

**Second Semester:** Management Elective, 3 hours; BUSA 4322; Outside Electives, 6 hours; Advanced Business Elective, 3 hours — Total Credit 15 hours.

## MANAGEMENT SCIENCE OPTION

The student concentrating in management science should be certain that he/she is meeting the requirements specified previously under the heading Requirements for a Bachelor of Business Administration Degree. Within the framework of these conditions, a student is limited to a maximum of 21 hours in each of the concentration areas. For a concentration in management science, a student would include 12 to 18 hours of management science beyond MASI 3306. MASI 3307, 4302, and 4308 are required. The balance of up to nine hours of concentration may be selected from the remaining management science offerings and MANA 3323.

The student concentrating in management science is also required to take BUSA 3322. Other required electives (accounting — three hours; business administration — three hours; economics — six hours) should be selected with the advice of registration advisor.

### **Suggested Course Sequence:**

#### JUNIOR YEAR

**First Semester:** MASI 3306; Accounting Elective, 3 hours; MANA 3319; BUSA 3321; Economics Elective, 3 hours; MARK 3321 — Total Credit 18 hours.

**Second Semester:** MASI 3307; BLAW 3311; BUSA 3322; Economics Elective, 3 hours; FINA 3313; Advanced Business Elective, 3 hours — Total Credit 18 hours.

#### SENIOR YEAR

**First Semester:** MANA 3323 or Management Science Elective, 3 hours; MASI 4302; Management Science and Advanced Business Electives, 9 hours — Total Credit 15 hours.

**Second Semester:** MASI 4308; BUSA 4322; Outside Electives, 6 hours; Advanced Business Elective, 3 hours — Total Credit 15 hours.

## MARKETING OPTION

The student concentrating in marketing should be certain that he/she is meeting the requirements specified previously under the heading Requirements for a Bachelor of Business Administration Degree. Within the framework of these conditions a student is limited to a maximum of 21 hours in each of the concentration areas. For a student concentrating in marketing, this would include 12 to 18 hours in marketing beyond MARK 3321. MARK 4311 and MARK 4322 are required. The balance of up to 12 hours of concentration may be selected from the remaining marketing offerings.

The student concentrating in marketing is also required to take several electives (accounting — three hours; business administration — nine hours; economics — six hours) to be selected with the advice of registration advisor.

### **Suggested Course Sequence:**

#### JUNIOR YEAR

**First Semester:** MANA 3319; Accounting Elective, 3 hours; BLAW 3311; BUSA 3321; Economics Elective, 3 hours; MARK 3321 — Total Credit 18 hours.

## **BUSINESS ADMINISTRATION**

**Second Semester:** Marketing Electives, 6 hours; MASI 3306; Economics Elective, 3 hours; FINA 3313; Advanced Business Elective, 3 hours — Total Credit 18 hours.

### **SENIOR YEAR**

**First Semester:** MARK 4311; Advanced Business Electives, 12 hours — Total Credit 15 hours.

**Second Semester:** MARK 4322; BUSA 4322; Outside Electives, 6 hours; Advanced Electives, 3 hours — Total Credit 15 hours.

### **REAL ESTATE OPTION**

The student concentrating in real estate should be certain he/she is meeting the requirements specified previously under the heading Requirements for a Bachelor of Business Administration Degree. Within the framework of these conditions, a student is limited to a maximum of 21 hours in each of the concentration areas. For a concentration in real estate, a student would include 12 to 18 hours of real estate beyond REAE 3325. REAE 3325 and REAE 4332 are required. The remaining six to 12 hours of real estate courses may be selected from the courses listed in the Real Estate section. These courses will be considered real estate courses even though offered by other departments. No more than six hours may be taken outside the College of Business Administration.

The student concentrating in real estate is also required to take BLAW 3314; also, ECON 3303 in satisfaction of three of the six hours of advanced economics required in the general BBA requirements.

Electives required in completion of the BBA general requirements may be taken from those courses listed in the Real Estate section if appropriate to the BBA general requirements or those courses selected with the advice of the registration advisor.

A student desiring a Real Estate option must complete 12 semester hours of courses bearing a Real Estate prefix (REAE).

#### ***Suggested Course Sequence:***

### **JUNIOR YEAR**

**First Semester:** MANA 3319; BUSA 3321; ECON 3303; FINA 3313; BLAW 3311; REAE 3325 — Total Credit 18 hours.

**Second Semester:** MARK 3321; MASI 3306; Accounting Elective, 3 hours; Real Estate Elective, 3 hours; Economics Elective, 3 hours; BLAW 3314 — Total Credit 18 hours.

### **SENIOR YEAR**

**First Semester:** Real Estate and Advanced Business Electives, 15 hours — Total Credit 15 hours.

**Second Semester:** REAE 4332; BUSA 4322; Outside Electives, 9 hours — Total Credit 15 hours.

### **SYSTEMS ANALYSIS OPTION**

The student concentrating in systems analysis should be certain he/she is meeting the requirements specified previously under the heading Requirements for a Bachelor of Business Administration Degree. Within the framework of these conditions, a student is limited to a maximum of 21 hours in each of the concentration areas. For a concentration in systems analysis, a student would include 12 to 18 hours of systems analysis beyond BUSA 2303. SYAN 3302, 3305, 3308, and 4306 are required. The balance of up to six hours may be selected from the remaining systems analysis course offerings.

The student concentrating in systems analysis is encouraged to take CSE 3341 and 4306 as outside electives. Other required electives (accounting — three hours; economics — six hours; business administration — three hours) should be selected with the advice of registration advisor.

#### ***Suggested Course Sequence:***

### **JUNIOR YEAR**

**First Semester:** SYAN 3302; SYAN 3305; Accounting Elective, 3 hours; MANA 3319; BUSA 3321; Economics Elective, 3 hours; — Total Credit 18 hours.

**Second Semester:** SYAN 3308; MASI 3306; BLAW 3311; Economics Elective, 3 hours; FINA 3313; MARK 3321 — Total Credit 18 hours.

**SENIOR YEAR**

**First Semester:** SYAN 4306; Systems Analysis Elective, 3 hours; Advanced Business Electives, 9 hours — Total Credit 15 hours.

**Second Semester:** Systems Analysis Elective 3 hours; Outside Electives, 6 hours; BUSA 4322; Advanced Business Elective, 3 hours — Total Credit 15 hours.

**BUSINESS ADMINISTRATION (BUSA)**

**2301. HUMAN BEHAVIOR IN BUSINESS ORGANIZATIONS (3-0)** 3 hours credit — Concepts, theories and research in the area of human social behavior; the potential human issues all organizations must face. Topics include human learning, motivation, social perception, attitudes, interpersonal attraction and conflict, leadership and group behavior. Will satisfy the three-hour behavioral science requirement in the College of Business Administration.

**2303. INTRODUCTION TO BUSINESS DATA PROCESSING (3-0)** 3 hours credit — Introduction to business data processing, application blanks for the TOEFL examination can be and problems involved in business information processing systems. Selected programming languages are presented and programming assignments are required. Prerequisite: MATH 1315.

**3190, 3290, 3390. COOPERATIVE EDUCATION** (Variable credit from 1 to 3 semester hours as arranged) — Supervised employment in a business or government organization with the student performing duties related to the academic curricula of business administration. Third year students participating in Cooperative Education are required to enroll for credit depending upon the hours worked per semester. The student is required to submit a term paper case study, or an approved academic project related to the work performed for each semester enrolled in the program. A maximum of three semester hours credit in Cooperative Education may be used to satisfy a business elective requirement for graduation. Prerequisite: consent of Coop Advisor.

**3301. COMMUNICATION: INTERPERSONAL BEHAVIOR AND GROUP PROCESSES (3-0)** 3 hours credit — The development of attitudes and interpersonal communication skills essential to effective group performances. Interpersonal perception, the psychological contract, functional roles of group members, group problem solving and decision making, group norms, and intergroup processes.

**3321. BUSINESS STATISTICS (3-0)** 3 hours credit — Application of statistical techniques to business and economic data. Topics include descriptive statistics, probability distributions, estimation, inference, regression, correlation, and time series. Prerequisite: MATH 1316 or calculus.

**3322. BUSINESS STATISTICS (3-0)** 3 hours credit — The application of statistical inference to problems in business and economics. Includes topics in sampling theory, nonparametric methods, and forecasting. Special attention to statistical research techniques. Prerequisite: BUSA 3321.

**3326. CREDITS AND COLLECTIONS (3-0)** 3 hours credit — The use of credit in modern business; the relation of credit information, credit bureaus, collection letters, and the economic justification for credit extension. (May be included as part of the finance concentration, except that it may not be substituted for FINA 4315, Advanced Business Financial Analysis). Prerequisite: junior standing.

**3328. PRINCIPLES OF TRANSPORTATION (3-0)** 3 hours credit — The function of transportation in the economic system and social organization, the relative fitness of different modes of transportation to meet present-day economic and social needs, the economic principles underlying transport service and rates, the factors shaping public regulation of transport, economic evaluation of regulatory policies, and the need for effective solutions to modern problems of urban transport and coordination of competing modes of transport. Credit may not be earned for both BUSA 3328 and ECON 3328. Prerequisites: ECON 2306 and junior standing or consent of instructor.

**4190, 4290, 4390. COOPERATIVE EDUCATION** (Variable credit from 1 to 3 semester hours as arranged) — Supervised employment in a business or government organization with the student performing duties related to the academic curricula of business administration. Fourth year students participating in Cooperative Education are required to enroll for credit depending upon the hours worked per semester. The student is required to submit a term paper, case study, or an approved academic project related to the work performed for each semester enrolled in the program. A maximum of three semester hours credit in Cooperative Education may be used to satisfy a business elective requirement for graduation. Prerequisite: consent of Coop Advisor.

**4191, 4291, 4391. STUDIES IN BUSINESS** (Variable credit from 1 to 3 semester hours as arranged) — Advanced studies, on an individual basis, in the various fields of business literature. Prerequisites: senior standing and permission of instructor. May be repeated for credit with consent of department chairman.

**4322. ORGANIZATIONAL POLICY AND ADMINISTRATION (3-0)** 3 hours credit — An integrative learning experience through the presentation of advanced material and study of administrative policy cases. Administrative processes under conditions of uncertainty. The total organizational environment, including social, economic, ethical, political and technological influences. Analyses of the basic organizational functions to aid in development of administrative controls. A capstone offering for the business major. Prerequisite: completion of all business core courses and senior standing.

## **BUSINESS ADMINISTRATION**

**4325. ENTREPRENEURSHIP AND VENTURE MANAGEMENT** (3-0) 3 hours credit — The fundamentals of identifying the need for and organizing a small business. The role and characteristics of the entrepreneur and problems of venture initiation. New venture creation and its management through the first two or three years of operation. Prerequisites: junior standing and permission of the instructor.

**4326. SEMINAR IN ENTREPRENEURSHIP** (3-0) hours credit — Special problems related to new business start-up. The course will allow the student to actually prepare a new business plan to participate in projects such as venture capital market access, special "live" cases, etc. Prerequisite: BUSA 4325 and permission of the instructor.

**4331. SEMINAR IN BUSINESS** (3-0) 3 hours credit — Readings and discussion of special topics in business. Prerequisite: junior or senior standing and consent of instructor. May be repeated for credit with consent of department chairman.

**4338. SMALL BUSINESS ANALYSIS AND ADMINISTRATION** (3-0) 3 hours credit — Analysis of small business operations. Students will work with a number of small businesses. The integration of knowledge and application of theories across functional areas are stressed. Prerequisites: senior standing and consent of the instructor.

## **BUSINESS LAW (BLAW)**

**3311. LAW I** (3-0) 3 hours credit — The law relevant to business transactions of large and small business firms and individuals. The history and development of our legal system. (e.g. increased government regulation of business) reviewed to help the student understand political and social influences on law. Topics covered include common law and Uniform Commercial Code, and contractual relationships (contracts, assignments, commercial papers, sales, and bailments).

**3312. LAW II** (3-0) 3 credit hours — The law of property (real and personal), business associations (agency, partnership, corporation, bankruptcy), wills and trusts. Prerequisite: junior standing.

**3313. LAW—CONTEMPORARY PERSPECTIVE** (3-0) 3 hours credit — Topics of legal significance to society. The influence of history on present legal remedies; evidence and procedures of litigation; the law of crimes, torts, wills, trusts, marriage, divorce, morals, and current issues. Prerequisite: junior standing.

**3314. REAL ESTATE LAW** (3-0) 3 hours credit — Development of real estate law and the legal constraints within which real estate decisions are made. Prerequisite: junior standing.

**4310. BASIC INTERNATIONAL LAW FOR BUSINESS** (3-0) 3 hours credit — The basic principles of law related to international transactions and relations as may be applicable to business dealings. Laws related to persons and property in the foreign environment. Prerequisite: BLAW 3311 and junior standing.

## **INSURANCE (INSU)**

**3324. PRINCIPLES OF INSURANCE** (3-0) 3 hours credit — Life, fire, and marine casualty insurance as well as corporate suretyship. Prerequisite: junior standing.

**4329. PROPERTY AND CASUALTY RISK MANAGEMENT** (3-0) 3 hours credit — Fire, marine, and automobile insurance; business, professional, and personal liability insurance; theft insurance; disability and miscellaneous casualty coverage, surety bonds, rate structures, and multiple line contracts. Prerequisite: junior standing or consent of instructor.

**4330. LIFE AND HEALTH RISK MANAGEMENT** (3-0) 3 hours credit — Principles underlying the fields of life and health insurance. Types of life, health, and annuity contracts; determination of premiums; policy provisions, reserve provisions, and legal requirements. Prerequisite: junior standing.

# The Department of ECONOMICS

## REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN ECONOMICS

Students must be currently meeting all lower division requirements before enrolling for upper division courses. Specified prerequisites are designated for certain courses. Waiver of either of the above will require consent of the instructor and approval of the Dean of the College of Business Administration. It is recommended that students intending to do graduate work take mathematics through MATH 2325, Calculus II.

<b>English:</b>	1301, 1302, and six hours of sophomore or upper division English courses.
<b>Foreign Language:</b>	1441, 1442, 2313, and 2314.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312, 2301, 2302.
<b>Mathematics:</b>	1302 or 1315, and 1316; or 1325 and 1326. *
<b>Statistics:</b>	BUSA 3321 and 3322.
<b>Science:</b>	Six hours in each of two sciences or 12 hours in one science (six hours with laboratory).
<b>Outside Electives:</b>	Nine hours outside the College of Business Administration.
<b>Other Electives:</b>	Sufficient to give the total number of hours required for a degree.
<b>Major:</b>	Thirty hours in economics, including ECON 2305, 2306, 3303, 3310, 3312 and at least 15 additional hours of advanced economics, with a minimum of six hours of advanced economics at the 4000 level.
<b>Minor:</b>	18 hours, at least six of which shall be advanced.
<b>Total:</b>	126 hours, at least 36 of which must be advanced, plus physical education or military science or marching band as required.

\* Additional mathematics courses are advised for students planning graduate study in economics.

### *Suggested Course Sequence:*

#### FRESHMAN YEAR

**First Semester:** ENGL 1301; Foreign Language 1441; MATH 1302; Science, 3 or 4 hours; HIST 2301; Physical Education or Military Science or Marching Band — Total Credit 17 or 18 hours.

**Second Semester:** ENGL 1302; Foreign Language 1442; MATH 1316; Science, 3 or 4 hours; HIST 2302; Physical Education or Military Science — Total Credit 17 or 18 hours.

#### SOPHOMORE YEAR

**First Semester:** English (2000 literature course), 3 hours; Foreign Language 2313; HIST 1311; ECON 2305; Science, 3 or 4 hours; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 or 18 hours.

**Second Semester:** English (2000 literature course), 3 hours; Foreign Language 2314; HIST 1312; ECON 2306; Science, 3 or 4 hours; Physical Education or Military Science — Total Credit 16 or 17 or 18 hours.

#### JUNIOR YEAR

**First Semester:** Elective (behavioral science recommended), 3 hours; BUSA 3321; POLS 2311; ECON 3303; Minor, 3 hours — Total Credit 15 hours.

**Second Semester:** Elective (philosophy, art, or music recommended), 3 hours; BUSA 3322; POLS 2312; ECON 3312; Minor, 3 hours — Total Credit 15 hours.

## ECONOMICS

### SENIOR YEAR

**First Semester:** ECON 3310; Economics 3000 or 4000, 6 hours; Electives (including minor), 6 hours — Total Credit 15 hours.

**Second Semester:** Economics 3000 or 4000, 9 hours; Electives (including minor), 6 hours — Total Credit 15 hours.

### REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN ECONOMICS

Students must be currently meeting all lower division requirements before enrolling for upper division courses. Specified prerequisites are designated for certain courses. Waiver of either of the above will require consent of the instructor and approval of the Dean of the College of Business Administration. It is recommended that students intending to do graduate work take mathematics through MATH 2325, Calculus II.

<b>English:</b>	1301, 1302, and six hours of sophomore or upper division English courses.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Mathematics:</b>	1302, or 1315, and 1316; or 1325 and 1326. *
<b>Science:</b>	Twelve hours including six in one science with laboratory and six additional hours of science; or six hours in a single science with laboratory plus six hours of additional mathematics (selected with approval of advisor).
<b>Philosophy, Art, or Music:</b>	Three hours.
<b>Behavioral Science:</b>	A minimum of six hours (nine suggested). BUSA 2301 may be used in partial satisfaction of this requirement.
<b>Outside Electives:</b>	Nine hours outside the College of Business Administration.
<b>Statistics:</b>	BUSA 3321, 3322.
<b>Accounting and Finance:</b>	ACCT 2301, 2302, and one of the following: ACCT 3310, 3311, 3313, FINA 3313:
<b>Major:</b>	ECON 2305, 2306, 3303, 3310 and 3312 plus 15 additional hours in advanced economics, with a minimum of six hours at the 4000 level. Total hours in economics may not exceed 30.
<b>Minor:</b>	Eighteen hours, at least six of which shall be advanced. (The six hours in statistics and the nine hours in accounting and finance count as part of a minor in business administration.)
<b>Other Electives:</b>	Sufficient to give the total number of hours required for a degree.
<b>Total:</b>	126 hours, at least 39 of which must be advanced, plus physical education or military science or marching band as required.

\* Additional mathematics courses are advised for students planning graduate study in economics.

### *Suggested Course Sequence:*

#### FRESHMAN YEAR

**First Semester:** ENGL 1301; MATH 1302; Science, 3 hours; Elective (art, music or philosophy recommended), 3 hours; HIST 1311; Physical Education or Military Science or Marching Band — Total Credit 16 hours.

**Second Semester:** ENGL 1302; MATH 1316; Science, 3 hours; Elective (behavioral science recommended), 3 hours; HIST 1312; Physical Education or Military Science — Total Credit 16 hours.

#### SOPHOMORE YEAR

**First Semester:** English (2000 literature course), 3 hours; POLS 2311; Science or Mathematics, 3 hours; ECON 2305; ACCT 2301; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 hours.

**Second Semester:** English (2000 literature course), 3 hours; POLS 2312; Science or Mathematics, 3 hours; ECON 2306; ACCT 2302; Physical Education or Military Science — Total Credit 16 or 17 hours.

**JUNIOR YEAR**

**First Semester:** ECON 3303; BUSA 3321; ACCT 3310 or ACCT 3311 or ACCT 3313 or FINA 3313; Behavioral Science Elective, 3 hours; Economics Elective, 3 hours — Total Credit 15 hours.

**Second Semester:** ECON 3312; BUSA 3322, Electives, 12 hours — Total Credit 18 hours.

**SENIOR YEAR**

**First Semester:** ECON 3310; Economics Elective (4000 level), 3 hours; Electives, 12 hours — Total Credit 18 hours.

**Second Semester:** Economics Elective (4000 level), 3 hours; Electives, 6 hours; Economics Electives, 6 hours — Total Credit 15 hours.

**ECONOMICS (ECON)**

*Chairman: Professor Trapani*

*Professors Carney, Furubotn, Hayashi, Holland, Keim, McCrea, Mullendore, Nelson, Reher, Ziegler*

*Associate Professors Duwaji, McCall*

*Assistant Professors Dennis, Harris, Shuttee, Wilson*

*Lecturer Mullick*

**2305. PRINCIPLES OF ECONOMICS (3-0)** 3 hours credit — The concepts and problems related to society's creation and use of wealth. Economic organization, national income, economic stability and growth, money and banking, taxation, fiscal policies, and business and labor organizations.

**2306. PRINCIPLES OF ECONOMICS (3-0)** 3 hours credit — The composition and pricing of national output as determined by demand and supply, cost and price, rent and interest, value and income. International trade and current economic problems. Prerequisite: ECON 2305.

**2337. ECONOMICS OF SOCIAL ISSUES (3-0)** 3 hours credit — Economic consequences and solutions of current social issues. Each semester a series of topics will be covered in line with current events and the instructor's expertise. Will not serve to meet degree requirements for College of Business Administration majors.

**3301. THE ECONOMICS OF HEALTH (3-0)** 3 hours credit — Economic forces acting upon the health "industry." With more than eight percent of Gross National Product devoted to health, this sector has great significance. Previous training in economics is not required; necessary economic tools will be developed in the course. Will not serve to meet degree requirements within the College of Business Administration.

**3303. MONEY AND BANKING (3-0)** 3 hours credit — Monetary and banking systems of the United States, including the problems of money and prices, proper organization and functioning of commercial banking and Federal Reserve systems, problems of monetary standards, and credit control. Recent monetary and banking trends. Prerequisites: ECON 2306 and junior standing or consent of instructor.

**3304. PUBLIC FINANCE (3-0)** 3 hours credit — How government policies as to expenditures, revenues, debts, and financial administration may contribute to achievement of the goals of the national economy. The political process by which government fiscal decisions are made and economic analysis and evaluation of alternative government fiscal actions. Prerequisites: ECON 2306 and junior standing or consent of instructor.

**3310. MICROECONOMICS (3-0)** 3 hours credit — The economic theory of value in directing production and distribution. Price determination under varying degrees of competition, oligopoly and monopoly; production in both the firm and the industry; distribution of national output. Prerequisites: ECON 2306 and junior standing or consent of instructor.

**3312. MACROECONOMICS (3-0)** 3 hours credit — The measurement and analysis of national income. Recent developments in aggregate economics theory and policy in relation to full employment, price stability, and economic growth. Prerequisites: ECON 2306 and junior standing or consent of instructor.

**3313. INDUSTRIAL ORGANIZATION AND PUBLIC POLICY (3-0)** 3 hours credit — The status and character of industrial firms and their efficiency and technological processes. Changing problems and policies related to industrial operation, market structure and economic concentration. Prerequisites: ECON 2306 and junior standing or consent of instructor.

**3318. INTRODUCTION TO ECONOMETRICS (3-0)** 3 hours credit — Statistical methods of special application to economics problems. Regression analysis and problems arising from least squares estimation. Prerequisite: BUSA 3321 or MATH 3310 or 3313.

**3328. PRINCIPLES OF TRANSPORTATION (3-0)** 3 hours credit — The function of transportation in the economic system and social organization, the relative fitness of different modes of transport to meet present-day economic and social needs, the economic principles underlying transport service and rates, the factors shaping public regulation of transport, economic evaluation of regulatory policies, and the need for effective solution to modern problems of urban transport and coordination of competing modes of transport. Credit may not be earned for both ECON 3328 and BUSA 3328. Prerequisite: ECON 2306 and junior standing or consent of instructor.

## ECONOMICS

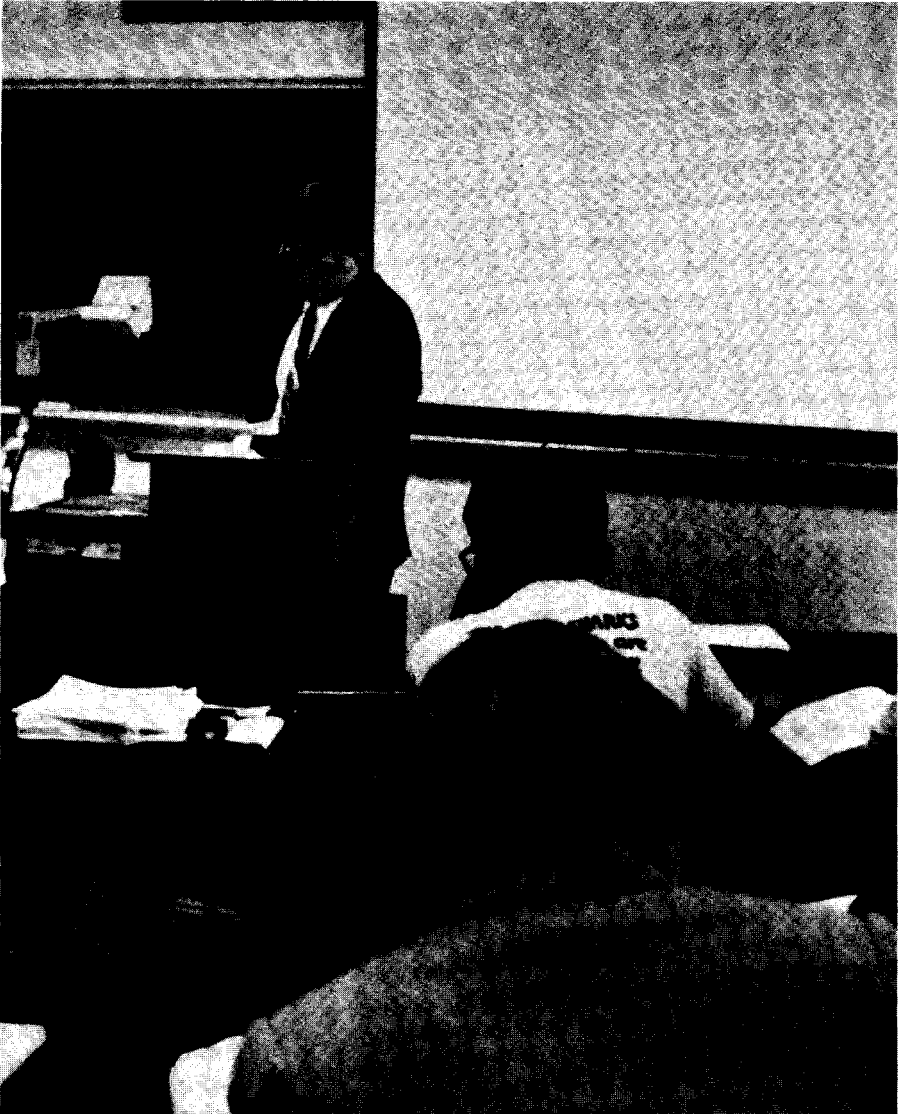
- 3388. EUROPEAN ECONOMIC HISTORY, 1750-PRESENT** (3-0) 3 hours credit — The English Industrial Revolution, Europe's hesitant emulation before 1850, and the emergence of modern large-scale corporate finance and industry in the later 19th and 20th Centuries. Topics for the 20th Century include depression and European economic integration. Also listed as HIST 3388; credit will be given in only one area.
- 4191, 4291, 4391. STUDIES IN ECONOMICS** (Variable credit from 1 to 3 semester hours as arranged) — Advanced studies, on an individual basis, in the various fields of economic literature. Prerequisites: ECON 2306, three hours of advanced economics, senior standing, and consent of instructor.
- 4301. THE ECONOMICS OF GROWTH AND DEVELOPMENT** (3-0) 3 hours credit — Theoretical explanations and historical factors of economic development and underdevelopment. Policies for accelerating development in poor countries and in rich countries. Prerequisites: ECON 2306, three hours advanced economics and junior standing or consent of instructor.
- 4304. STATE AND LOCAL FINANCE** (3-0) 3 hours credit — Fiscal problems at the state and local levels of government including the division of functions and revenues between these levels of government; the taxing, spending, and borrowing structures of state and local governments. Prerequisites: ECON 2306 and junior standing or consent of instructor.
- 4306. COMPARATIVE ECONOMIC SYSTEMS** (3-0) 3 hours credit — The economic institutions of capitalism, socialism, communism, and fascism as a basis for analyzing the ideas and philosophies with which each is associated. The theoretical and actual operation of these alternative economies. Prerequisites: ECON 2306, three advanced hours of economics, and junior standing or consent of instructor.
- 4311. MANAGERIAL ECONOMICS** (3-0) 3 hours credit — Uses economic analysis to formulate business policies concerning the determination of how much and what kind of resources the firm employs in its production process; the analysis of cost-output relationships in the firm; the problem of business forecasting; selection of the firm's marketing, capital, and research and development budget; the pricing decisions of the firm; and methods by which businesses may analyze and evaluate their own economic performance. Prerequisites: ECON 2306, three advanced hours of economics, and junior standing or consent of instructor.
- 4319. THE ECONOMIC IMPACT OF THE MULTINATIONAL CORPORATION** (3-0) 3 hours credit — The economic impact of the operations of the multinational corporations on the world economy. Prerequisites: ECON 2306 and junior standing.
- 4320. REGIONAL ECONOMIC ANALYSIS** (3-0) 3 hours credit — The analysis of intranational regions including consideration of regional accounts, regional income determination, regional growth, interregional trade, and public policy for development of regions. Prerequisites: ECON 2306 and junior standing or consent of instructor.
- 4321. INTERNATIONAL TRADE** (3-0) 3 hours credit — The principles underlying economic relations among nations. Investment and capital movements, foreign exchange, balance of trade, population changes, tariff policies, and recent developments in international trade or monetary policies. Prerequisites: ECON 2306, three hours of advanced economics, and junior standing or consent of instructor.
- 4322. INTERNATIONAL FINANCIAL RELATIONS** (3-0) 3 hours credit — The nature and instruments of international payments. International financial institutions and arrangements. Also listed as FINA 4322; only one of these may be counted for credit. Prerequisite: three hours of economics beyond ECON 2305 and 2306.
- 4323. INTRODUCTION TO MATHEMATICAL ECONOMICS** (3-0) 3 hours credit — Designed to expose certain basic mathematical concepts and methods to the students and to relate these mathematical techniques to the various types of economic analysis. The mathematical methods used in static and comparative-static analysis, optimization problems, and simple dynamic analysis. Prerequisites: MATH 1316, ECON 3303 or 3312, and 3310.
- 4324. MONETARY AND FISCAL POLICY** (3-0) 3 hours credit — The effects of money on production and national income; quantity and commodity theories of money; various theories of interest rates; instruments and policies of Federal Reserve monetary action; proposals for monetary reform. Central bank systems. Prerequisites: ECON 2306, three hours of advanced economics, and junior standing or consent of instructor.
- 4325. ECONOMIC FLUCTUATIONS AND FORECASTING** (3-0) 3 hours credit — The phenomenon of economic fluctuations. Historical and theoretical points of view; the significance of Gross National Product calculations and their implication for levels of business activity. Prerequisites: ECON 2305, three hours of advanced economics, and junior standing or consent of instructor.
- 4326. HISTORY OF ECONOMIC THOUGHT** (3-0) 3 hours credit — Economic ideas from ancient times to the present mercantilism, the classic school, and the marginal theory. The Keynesian and institutional schools as major intellectual forces shaping contemporary economic thinking. Prerequisites: ECON 2306, three hours of advanced economics, and junior standing or consent of instructor.
- 4330. LABOR ECONOMICS** (3-0) 3 hours credit — The development of a modern industrial labor force; trade unionism as a response to industrialization; and the pricing and allocation of human resources. Prerequisites: ECON 2305 and 2306.



**4331. SEMINAR IN ECONOMICS** (3-0) 3 hours credit — Readings and discussion of special topics in economics. Prerequisites: ECON 2306, three hours of advanced economics, and junior standing or consent of instructor.

**4335. LABOR RELATIONS AND THE LAW** (3-0) 3 hours credit — Historical development of public policy toward unions and collective bargaining. Legislative, judicial, and administrative decisions affecting employer-employee relationships; the NLRA as amended. Prerequisite: ECON 2306 and junior standing or consent of instructor.

**4337. ECONOMIC ISSUES** (3-0) 3 hours credit — Designed for majors outside the College of Business Administration. Economic considerations affecting the solution of national problems. Topics include the economics of social, environmental, international, and developmental issues. Accounting, business, and economics majors cannot earn credit toward graduation in this course. Prerequisite: junior standing.



# The Department of FINANCE & REAL ESTATE

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## REQUIREMENTS FOR A BACHELOR OF BUSINESS ADMINISTRATION DEGREE (Finance and Real Estate Options)

See Business Administration section of the catalog for specific degree requirements.

*Chairman: Professor Apilado*

*Associate Professors Bul, Cantwell, Edgar, Helm, Herbst, Isakson, Mclnish, Ordway, Turner*

*Assistant Professors, Lockwood, Schwendiman, Swanson*

*Instructor Sadler*

*Senior Lecturer Dowdy*

*Lecturers Aziz, Greenberg, Martin, Mohr*

### FINANCE (FINA)

**2310. PERSONAL FINANCE** (3-0) 3 hours credit — A diverse and practical range of topics which the average individual will be concerned with in making financial decisions during a lifetime. Personal budgeting, banking relationships, life and casualty insurance, taxes, investments, and estate planning. Will not be accepted for credit toward any College of Business Administration degree program.

**3313. BUSINESS FINANCE** (3-0) 3 hours credit — This course emphasizes the financing and investment decisions of the financial manager. Included are topics such as financial statement analysis, working capital management, capital budgeting, long-term financing, and international finance. Prerequisites: ECON 2306, ACCT 2302, and junior standing.

**3315. INVESTMENTS** (3-0) 3 hours credit — Principles governing the proper investment of personal and institutional funds, information sources, security analysis, exchanges and regulations. Formerly FINA 4313; credit will be granted only once. Prerequisite: FINA 3313.

**3317. FINANCIAL INSTITUTIONS AND MARKETS** (3-0) 3 hours credit — The structure of financial institutions and markets in the United States and their interactions. How and why the institution has evolved, how it fits within the financial system, how it operates, what is its current impact, and what may its future role be. Formerly FINA 4314; credit will be granted only once. Prerequisite: FINA 3313.

**4315. ADVANCED BUSINESS FINANCIAL ANALYSIS** (3-0) 3 hours credit — To develop an ability to recognize financial problems, analyze financial data, formulate alternative solutions, and render financial decisions. Case materials are used in studying financial problems. Management of investment in current and fixed assets, planning of profits, forecasting of cash requirements, capital budgeting, planning of methods of financing and capital structure, dividend policy, valuation of assets, and mergers. Prerequisite: FINA 3313.

**4316. SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT** (3-0) 3 hours credit — Analytical techniques employed by investors and portfolio managers to improve timing of investment commitments and to aid in managing investor portfolios. Fundamental and technical analytical procedures designed for the purpose of supplying information pertaining to the prospective trends of economic activity, interest rates, investment opportunities. Prerequisite: FINA 4313.

**4320. CAPITAL BUDGETING** (3-0) 3 hours credit — Development of the logic and methodology of the capital budgeting decision. Measurement of cash flows, present value techniques, evaluation of capital investments, ranking of capital investments, analysis of risk, and administration of capital investments. Prerequisite: FINA 3313.

**4322. INTERNATIONAL FINANCIAL RELATIONS** (3-0) 3 hours credit — The nature and instruments of international payments. International financial institutions and arrangements. Listed also as ECON 4322; only one of these may be counted for credit. Prerequisite: three hours of economics beyond ECON 2305 and 2306.

**4324. INTERNATIONAL CORPORATE FINANCE** (3-0) 3 hours credit — Issues and questions which concern financial management of international corporations. Analysis of the financing of investment abroad and the management of assets in differing financial environments. The foreign investment decision, cost of capital and financial structure for multinational decision making, management of foreign subsidiary working capital, and financial control of multinational operations. Prerequisite: FINA 3313.

**4327. TOPICS IN FINANCE (3-0) 3 hours credit** — Offers those in their senior year the opportunity for advanced study in a particular topic, or sequence of topics, which are not offered on a regular basis. Prerequisite: FINA 3313 and at least one senior-level finance course.

**4330. FINANCIAL MANAGEMENT OF FINANCIAL INSTITUTIONS (3-0) 3 hours credit** — Integrates the sources and uses and flow of funds in the money and capital markets with the influence of other market factors into a study of the asset, liability, and capital management of financial institutions, with emphasis on current problems and issues. Prerequisite: FINA 3317.

**REAL ESTATE (REAE)**

**3325. REAL ESTATE PRINCIPLES AND PRACTICES (3-0) 3 hours credit** — A foundation for study and research in specialized areas such as real estate financing, real estate investment and counseling, real estate management, real estate development, and property appraising. Formerly BUSA 3325; credit will be granted only once. Prerequisite: junior standing.

**4310. REAL ESTATE INVESTMENT MANAGEMENT (3-0) 3 hours credit** — The determination of financial feasibility for proposed real estate investments, the effect of income taxes and various financing patterns on the equity investment, and the criteria for proper decision making to maximize benefits for equity investors. Prerequisite: REAE 3325.

**4311. LAND DEVELOPMENT REGULATIONS (3-0) 3 hours credit** — The legal constraints applied to the physical growth of urban areas. Rules, regulations, enabling acts, codes, ordinances, administrative practices and related legal and quasi-legal procedures as they apply to growth, development and redevelopment of cities, suburbs, and the countryside. Federal regulations affecting real estate and interrelationships of the various levels of regulation. Prerequisite: REAE 3325.

**4312. RESIDENTIAL PROPERTY APPRAISAL (3-0) 3 hours credit** — Principles involved in the valuation of residential real property. Explores with some detail cost, market, and income methods of estimating value and reconciliation of value indicators. Prerequisite: REAE 3325.

**4319. REAL ESTATE FINANCE (3-0) 3 hours credit** — Problems associated with real property financing. In-depth study of financial intermediaries who supply funds for real property investment. May be included as a part of the finance concentration. Formerly BUSA 4319; credit will be granted only once. Prerequisite: REAE 3325.

**4332. CONTEMPORARY REAL ESTATE ISSUES (3-0) 3 hours credit** — Contemporary real estate problems and issues affecting the real estate decision maker. Prerequisites: REAE 3325, six additional hours of real estate, and senior standing.

**4334. INCOME PROPERTY APPRAISAL (3-0) 3 hours credit** — Principles and techniques of income capitalization with stress on mortgage-equity techniques. Income capitalization as a fundamental, powerful tool of analysis. Prerequisite: REAE 3325.

Up to six credit hours from the following courses may be applied toward completion of the real estate option.

Complete course descriptions and prerequisites may be found in the appropriate sections of this catalog.

- ACCT 3315 — Federal Income Tax (3-0) 3 hours credit
- ACCT 4301 — Corporate Income Tax (3-0) 3 hours credit
- FINA 3317 — Financial Institutions and Markets (3-0) 3 hours credit
- FINA 3315 — Investments (3-0) 3 hours credit
- MARK 4311 — Marketing Research (3-0) 3 hours credit
- ECON 4325 — Economic Fluctuations and Forecasting (3-0) 3 hours credit
- ECON 4320 — Regional Economic Analysis (3-0) 3 hours credit
- ARCH 4305 — City and Regional Planning (3-0) 3 hours credit
- CE 3328 — Urban Planning Fundamentals (3-0) 3 hours credit
- POLS 3305 — Government in Urban America (3-0) 3 hours credit
- POLS 3309 — Government and Environmental Protection (3-0) 3 hours credit
- GEOL 3302 — Introduction to the Geology of the United States
- HIST 4319 — United States Urban History (3-0) 3 hours credit
- SOCI 3355 — Sociology and Urban Planning (2-2) 3 hours credit
- SOCI 3353 — The Urban Community (2-2) 3 hours credit
- INSU 4329 — Property and Casualty Risk Management (3-0) 3 hours credit

# The Department of MANAGEMENT

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## REQUIREMENTS FOR A BACHELOR OF BUSINESS ADMINISTRATION DEGREE (Management Option)

See Business Administration section of the catalog for specific degree requirements.

*Chairman: Professor Hitt*

*Professors Garland, Stanley, Wofford*

*Associate Professors Ayres, French, Gerloff, Gray, Price, Quick, B. Walker*

*Assistant Professors Jones, Rosenstein, Rudolf, Wheeler*

*Lecturers Boles, Hosler, Lubinski, G. Walker, Wilson*

### MANAGEMENT (MANA)

**3319. MANAGEMENT PROCESS THEORY** (3-0) 3 hours credit — Fundamentals of the management process; principles and techniques for all organizations. The basic functions of management: planning, organizing, directing, and controlling. Social responsibilities, political influences, and ethical considerations as they affect the management of organizations. Coverage of international business, production, communications, and decision-making in terms of management activities. Prerequisite: BUSA 2301 or equivalent.

**3320. PERSONNEL/HUMAN RESOURCES MANAGEMENT** (3-0) 3 hours credit — The process of effective management of human resources and an analysis of those elements essential to such a process. The objectives of an adequate personnel program. Effective planning, recruitment, selection, training. Employee compensation and the nature of pay and its relative importance. The nature of union-management relationships. The impact of organized labor upon personnel management. Prerequisite: MANA 3319.

**3323. OPERATIONS MANAGEMENT** (3-0) 3 hours credit — Planning for and use of physical resources. Prerequisite: MANA 3319.

**4320. MANAGEMENT OF INDUSTRIAL RELATIONS** (3-0) 3 hours credit — An in-depth analysis of several of the critical issues in personnel and industrial relations. Application of behavioral science principles and concepts to problems of employee benefits and services, wage and salary administration, union-management relations, collective bargaining, and related personnel maintenance problems. Prerequisite: MANA 3319.

**4321. MANAGEMENT OF THE MULTINATIONAL CORPORATION** (3-0) 3 hours credit — The unique factors influencing the management of multinational enterprises. The principles of international management, the organization and administration of multinational enterprises, and examination of cultural, economic, social and political variables which influence the operation of the multinational firm. Prerequisites: MANA 3319 and senior standing.

**4323. ORGANIZATION THEORY** (3-0) 3 hours credit — Principal theories of complex organizations. Approaches to the study of organizations, concepts and empirical findings concerning organization effectiveness and the relationship of the organization to its environment. Formal and informal organization, authority and influence, organization structure and design technology, systems properties of organization, information and workflows, and organization change and adaptation. Prerequisites: MANA 3319 and senior standing.

**4324. ORGANIZATIONAL BEHAVIOR** (3-0) 3 hours credit — An advanced analysis of concepts, research, and theories from the behavioral sciences as they apply to understanding the role of the individual as a member of organizations and to the effects of organizations upon their members. Organizational socialization, climate, and effectiveness, power and control, decision-making in groups, personnel development, and performance appraisal. Prerequisites: BUSA 2301 or equivalent and MANA 3319.

**4326. LEADERSHIP AND MOTIVATION** (3-0) 3 hours credit — Evidence and theories from organizational and social-psychological literature in the areas of leadership and motivation. Incentive theory, job involvement and job satisfaction leadership theories, studies of leadership, and motivation to work. Prerequisite: MANA 3319.

**4327. CURRENT ISSUES IN MANAGEMENT** (3-0) 3 hours credit — Seminar to consider major topics chosen for their relevance, recency, and their complexity. Prerequisites: MANA 3319 and senior standing.

# The Department of MARKETING

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## REQUIREMENTS FOR A BACHELOR OF BUSINESS ADMINISTRATION DEGREE (Marketing Option)

See Business Administration Section of the catalog for specific degree requirements.

*Chairman: Professor McDaniel*

*Professors Dickinson, Gates, Solomon*

*Associate Professors Calabro, Lucas*

*Assistant Professors Caballero, Jarboe, Painton*

*Lecturers Brickley, Switzer*

### MARKETING (MARK)

**3321. PRINCIPLES OF MARKETING** (3-0) 3 hours credit — The marketing function of the firm from the standpoint of the decision-maker. The marketing variables of products, channels, prices, and promotion as related both to the profitability of the firm and to customer satisfaction. The economic, legal, social, and international implications of marketing actions. Prerequisites: junior standing and ECON 2306 or consent of instructor.

**3322. SALES, SALES MANAGEMENT** (3-0) 3 hours credit — A didactic approach to the role of personal selling in a competitive, market-oriented economy. Professional, creative sales principles and selected management topics such as staffing, training, and motivating a productive sales force. Prerequisite: MARK 3321 or consent of instructor.

**3323. ADVERTISING MANAGEMENT** (3-0) 3 hours credit — The role of promotion in the marketing mix. The nature of the communications process and its relationship to advertising. Advertising budgeting, media planning, the advertising agency, the creative process, and evaluation and control of advertising. Prerequisite: MARK 3321.

**3324. BUYER BEHAVIOR** (3-0) 3 hours credit — The psychological and sociological aspects of both industrial and consumer buyer behavior. Motivation, cognition, and learning. Personality characteristics, the study of personal needs, and symbolism, as interrelated with formation of marketing strategy. From a sociological point of view, the emphasis is on group behavior and its effect on marketing decision theory. Prerequisite: MARK 3321.

**4301. PHYSICAL DISTRIBUTION SYSTEMS** (3-0) 3 hours credit — The components of modern day physical distribution systems. Facility location, transportation, warehousing, inventory control, and communications and contemporary modifications of each. Total system analysis is analyzed with the objective of final system design. Prerequisites: MARK 3321, MASI 3306, BUSA 3321.

**4303. PRINCIPLES OF RETAILING** (3-0) 3 hours credit — The position of retailing in the distribution channel. The part played by retailing in our economic system, with particular attention to the interaction between suppliers and consumers. Retail management functions such as inventory management, pricing, merchandising buying, advertising and sales promotion. Prerequisite: MARK 3321.

**4311. MARKETING RESEARCH** (3-0) 3 hours credit — Designed to make students intelligent users of marketing research data. The interrelationship between marketing research and marketing management. Methods and techniques used to generate primary data in commercial marketing research. Design of research projects, methods for generating primary data, sampling of human populations, experimental design, and data analysis. Prerequisites: MARK 3321 and BUSA 3321.

**4312. ADVANCED MARKETING RESEARCH** (3-0) 3 hours credit — An extension of MARK 4311. Concentrates on the question of data analysis in marketing research. Topics include data analysis via interactive computing, and introduction and use of major statistical software packages. Emphasis is on application rather than theory. Prerequisites: MARK 4311 and BUSA 3322.

**4315. RETAIL MERCHANDISE MANAGEMENT AND CONTROL** (3-0) 3 hours credit — The philosophy, concepts, and techniques underlying the planning and control of sales and inventories in retail stores. Discussion moves from a basic understanding of profit and loss statement to the actual planning of merchandising operations. Emphasis on planning and control. Prerequisites: MARK 3321 and 4303.

## MARKETING

**4320. PRODUCT MANAGEMENT (3-0) 3 hours credit** — This course deals with questions related to the management of the firm's product/service offering. Topics include marketing research for new products, product strategy, brand management, the product portfolio, and others. Prerequisite: MARK 3321.

**4322. MARKETING POLICY (3-0) 3 hours credit** — A capstone course which stresses the integration of the student's knowledge in the areas of economics, finance, management and organization theory, and marketing. Students are required to bring the theory and concepts they have learned in these different areas to bear on the solution of case problems. Prerequisites: MARK 3321, 4311, three additional hours of marketing, and senior standing.

**4325. INTERNATIONAL MARKETING (3-0) 3 hours credit** — Explores the techniques of entering the international marketplace. Explains the impact of sociocultural, economic, technological, governmental, and demographic factors on the international marketing mix. Prerequisite: MARK 3321.

**4328. CONTEMPORARY ISSUES IN MARKETING (3-0) 3 hours credit** — Numerous contemporary problems and issues affecting the marketing decision-maker. Prerequisites: MARK 3321, three additional hours of marketing, and senior standing.



# The Department of SYSTEMS ANALYSIS

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## REQUIREMENTS FOR A BACHELOR OF BUSINESS ADMINISTRATION DEGREE (Management Science and Systems Analysis Options)

See Business Administration Section of the catalog for specific degree requirements.

*Chairman: Professor Schkade*

*Associate Professors Baker, Brobst, Pinney, Rajaraman, Sircar*

*Assistant Professors Eakin, Hanna, Slinkman*

*Instructor Clarke*

*Assistant Instructor Dobbs*

*Lecturers H. Baker, Cykana, D'Cunha, Troxell, Tucker*

### MANAGEMENT SCIENCE (MASI)

**3306. MANAGEMENT SCIENCE I** (3-0) 3 hours credit — Introduction to the philosophy and techniques of management science. Classical optimization theory with business applications, linear programming by the simplex method, transportation and assignment models, inventory and replacement models, and queueing theory. PERT and CPM network analysis models. Prerequisite: MATH 1316 or equivalent.

**3307. MANAGEMENT SCIENCE II** (3-0) 3 hours credit — A survey of analytical tools of management science. Topics in linear and non-linear programming, Markov processes, Monte Carlo simulation, game theory, and optimum seeking methods (search techniques). Prerequisites: BUSA 3321 and MASI 3306.

**4302. ELEMENTARY DECISION ANALYSIS AND GAME THEORY** (3-0) 3 hours credit — Introduction to the analysis of decision making under conditions of uncertainty and risk. Decision trees, prior and posterior analysis, perfect and imperfect information, utility theory, and two-person zero sum games. Prerequisite: BUSA 3321 or concurrent enrollment.

**4305. SIMULATION OF BUSINESS SYSTEMS** (3-0) 3 hours credit — Deterministic and stochastic simulation models, including problem recognition, model design, construction, validation, and simulation of complex systems. Problems will be taken from a broad spectrum of business activity including economics, accounting, finance, marketing, management, and behavioral systems. Prerequisites: BUSA 3321 and MASI 3306.

**4308. APPLICATIONS OF MANAGEMENT SCIENCE** (3-0) 3 hours credit — Designed to integrate the theories of management science with the practice of management science in the areas of accounting, economics, finance, management, and marketing. The student will function in a business-like environment requiring problem recognition and definition, model development and solution of actual problems, and case studies in management science. Prerequisite: MASI 3306.

### SYSTEMS ANALYSIS (SYAN)

**3302. INTERMEDIATE BUSINESS COMPUTER PROGRAMMING** (3-0) 3 hours credit — Structured COBOL programming in a batch environment. Emphasis on language fundamentals and applications to business problems. Preparation of programs will involve the use of an on-line text editor. Focus is on structured program design and processing considerations of large scale operating systems. Prerequisite: BUSA 2303.

**3305. INFORMATION SYSTEMS ANALYSIS** (3-0) 3 hours credit — In-depth coverage of the analysis phase of the systems development life cycle. Emphasizes the feasibility study, requirements analysis, and system specification. Topics include behavioral issues, documentation, communication aids, interpersonal skills, analysis techniques, and physical and logical systems models and specifications. A systems analysis project is required. Prerequisite: BUSA 2303.

**3308. ADVANCED BUSINESS COMPUTER PROGRAMMING** (3-0) 3 hours credit — Advanced COBOL programming in a batch environment using structured design methodologies. Emphasis on business applications using sequential, indexed, and random access files. Table handling, report writing, program linkage, job control, and data structures are covered. Prerequisites: SYAN 3302, 3305.

## SYSTEMS ANALYSIS

**3320. INTERACTIVE AND DISTRIBUTED COMPUTING (3-0) 3 hours credit** — Interactive programming, software development methodologies for on-line business applications, concepts of distributed data processing, and office information systems. Topics include structured techniques, data communications principles, networks, distributed data bases, associated hardware and software, typical applications, and management considerations. Prerequisite: BUSA 2303.

**4302. DATA BASE MANAGEMENT SYSTEMS (3-0) 3 hours credit** — Comprehensive coverage of current data base technology and applications. Emphasis is on data models, query processing, design, and implementation. Topics include hierarchical, network, and relational data models, data dictionaries, distributed data bases, evaluation and selection of DBMS, and Data Base Administration. Prerequisite: SYAN 3308.

**4306. INFORMATION SYSTEMS DESIGN (3-0) 3 hours credit** — In-depth coverage of the design phase of the systems development life cycle. Emphasizes system design, development, and implementation. Topics include program structure design, data design, data structure design, coding, testing, validation, and conversion. A systems design project is required. Prerequisite: SYAN 3308.

**4307. INFORMATION SYSTEMS MANAGEMENT (3-0) 3 hours credit** — Management issues related to information processing. Topics include information systems planning, organization, control, and evaluation; personnel, the DP industry, data base administration, distributed data processing, legal considerations, office information systems, and social and technological trends. Prerequisite: SYAN 4306 or concurrent enrollment.





# The Center for PROFESSIONAL TEACHER EDUCATION

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The Center for Professional Teacher Education at the University of Texas at Arlington offers teacher certification opportunities for persons interested in becoming elementary, all-level, and/or secondary teachers. Endorsements to regular Texas Teacher Certificates are available in Kindergarten (for elementary and all-level teachers), Bilingual Education, Driver Education, and English as a Second Language.

Certification programs are designed to develop skilled and professionally competent teachers. Students successfully completing prescribed programs are recommended by the Center for Professional Teacher Education to the Texas Education Agency for official certification.

## CERTIFICATION PLANS

The Center for Professional Teacher Education prepares students for Texas Education Agency certification under three basic plans: elementary, all-level, and secondary teaching. A kindergarten endorsement to elementary and all-level certification is also available.

**Elementary certification**, a 30-semester-hour double major program, is available for students also majoring in one of the following academic areas: chemistry, drama, economics, English, French, geology, German, history, mathematics, physical education, physics, Russian, Spanish, Spanish/bilingual education, and speech. The reading specialization is also available.

**All-level certification** programs are available in art, music, physical education, and speech-drama.

**Secondary certification** is available to students in 28 academic areas: art, biology, chemistry, computer information system, drama, earth science, economics, English, French, German, health education, history, journalism, life-earth science middle school, mathematics, music, physical education, physical science, physics, political science, psychology, reading, Russian, science, social science, sociology, Spanish, speech. With the exception of art, music, science, and social science, all secondary certification students must have two 24-hour teaching fields.

## ENDORSEMENTS TO TEXAS TEACHER CERTIFICATES\*

**Kindergarten endorsement** — Students who meet the requirements for elementary or all-level certification may elect to add the kindergarten endorsement which is required of teachers in Kindergarten, pre-Kindergarten, or early childhood teaching assignments.

**Driver Education Endorsement** — Students who meet the requirements for elementary, all-level, or secondary certification may elect to add the Driver Education Endorsement.

**Bilingual Education Endorsement** — Students who meet the requirements for elementary, all-level, or secondary certification may elect to add the Bilingual Education Endorsement.

**English as a Second Language** — Students who meet the requirements for elementary, all-level, or secondary certification may elect to add the English as a Second Language Endorsement.

\*See endorsement advisor for specific requirements prior to registration.

## READING SPECIALIZATIONS

Students may earn an academic specialization in Reading for elementary teaching or a secondary teaching field in reading. See reading advisor for requirements.

## REQUIREMENTS

To be eligible for certification under all programs, a student must meet specific criteria set by the Center and the Texas Education Agency. Specific requirements for each program are stated in this and/or academic department sections of this catalog.

## PROFESSIONAL TEACHER EDUCATION

### ADMISSION TO CERTIFICATION PROGRAMS

For admission to a certification program, a student must develop a certification plan within his/her major academic department and make a formal written application to the Center for Professional Teacher Education. Students must complete 60 semester hours and be admitted to a certification program prior to enrollment in any education course required for certification.

To be admitted to a teacher certification program after May 1, 1984, applicants must provide evidence of achievement of a satisfactory level of performance on the Pre-Professional Skills Test which was developed by the Educational Testing Service and approved by the Texas State Board of Education.

Beginning May 1, 1986, to be approved for the provisional or professional teacher's certificate, additional teaching fields or areas of specialization, endorsements, the superintendent's certificate, or other administrative certificates, persons, including those holding valid out-of-state certificates, shall be required to achieve a satisfactory level of performance on one or more examinations prescribed by the Texas State Board of Education. Content to be tested and the criteria for mastery shall be prescribed for each area by the Texas State Board of Education.

In accordance with Article 6252-13c, Texas Civil Statutes, the Texas Commissioner of Education may suspend or revoke a teaching certificate, or refuse to issue a teaching certificate, for a person who has been convicted of a felony or misdemeanor for a crime which directly relates to the duties and responsibilities of the teaching profession. All applicants for Texas certificates will be screened for a record of felony or misdemeanor conviction through the Texas Department of Public Safety.

### CONTINUATION

The Center for Professional Teacher Education, in fulfillment of its responsibility to recommend for certification high quality professional educators, has established certain policies and procedures for reviewing candidates for certification and approving their continuance in the program. In addition to other requirements listed elsewhere, each candidate for certification must:

- (1) Demonstrate suitability for admission to the teaching profession and,
- (2) Demonstrate knowledge of and adherence to the Code of Ethics and Standard Practices for Texas Educators.

At such time as questions are raised by Center faculty or professional practitioners regarding either of the above, a formal review by the Center faculty resulting in a favorable recommendation will be required for continuation in the program.

### COURSE WORK

Each certification program requires students to successfully complete identified education course work, most of which require field-based experiences. The following courses are required of students entering available certification plans:

#### Elementary Certification

Elementary education courses must be taken in *Phase* sequence. The following pairs of courses must be taken concurrently and in the same section: EDUC 3306 and 3316, EDUC 4301 and 4302, EDUC 4303 and 4304. Elective requirements may be taken during Phase I, II, or III.

#### Phase I

**EDUC 3306** — The Elementary School Curriculum

**EDUC 3316** — Growth and Development of the Elementary Child

#### Phase II

**EDUC 4301** — Reading in the Elementary School

**EDUC 4302** — Language Arts in the Elementary School

**EDUC 4303** — Math and Science in the Elementary School

**EDUC 4304** — Social Studies in the Elementary School

#### Phase III

**EDUC 4652** — Student Teaching in the Elementary School

**Electives:** Six additional hours of course work must be taken from the following:

General elective courses — 3320, 4306, 4309, 4321, 4329, 4391, 4392

Elective courses applicable to Kindergarten Endorsement — 4317, 4318, 4319

Elective courses applicable to Bilingual Education — 3303, 4330, 4331

## PROFESSIONAL TEACHER EDUCATION

Elective courses applicable to Reading Specializations — 4324, 4325, 4326, 4334, 4335, 4391, 4392

Elective course applicable to English as a Second Language Endorsement — 4332

**See appropriate education advisor before making selections.**

### Combination of Courses: Elementary Certification Plans

Each elementary certification plan must include twelve hours from the following list. One course or three hours only may be counted from each subject area. Courses may NOT come from your academic specialization area.

Course		Title
MUSI	1300	Music Appreciation
MUSI	1305	Foundations of Music
ART	1345	Two-Dimensional Design
ART	1347	Drawing
ART	2377	Concepts in Art Education
SPCH	1302	Voice and Diction
SPCH	4360	Teaching Speech
SPCH/DRAM	3323	Oral Interpretation of Children's Literature
DRAM	3310	Teaching Creative Drama
DRAM	3312	Theatre Production for Children
DRAM	4362	Teaching Drama in Elementary School
HEED	1316	Foundations of Health*
HEED	3321	Health Education in the Elementary School
PHED	3430	Physical Education in the Elementary School
ENGL	3365	Children's Literature
ENGL	4302	Grammar and Composition
HEED/BIOL	1301	Nutrition
BIOL	2311	Man and Environment
BIOL	2310	Principles of Health*
PHYS	3366	Special Topics in Pre-College Physical Science Instruction
SOCI	4310	Minorities
ANTH	3332	Peoples of the World
ANTH	3343	Ecological and Cultural Geography
ECON	2305	Principles of Economics
ECON	2306	Principles of Economics
CSE	2301	Introduction to Computing
BUSA	2303	Introduction to Business Data Processing
HIST	2301	History of Civilization
HIST	2302	History of Civilization

\*Credit will NOT be granted for both HEED 1316 and BIOL 2310.

## **PROFESSIONAL TEACHER EDUCATION**

### **Secondary Certification**

- EDUC 3309** — Adolescents and the Classroom
  - EDUC 3310** — Teaching and the Teaching Profession
  - EDUC 4313** — Classroom Instruction and Management
  - EDUC 4314** — Application of Instruction in Classrooms
- Plus:
- EDUC 4650** — Student Teaching in the Secondary School

### **All-Level Certification (Art, Music and Speech-Drama)**

- EDUC 3306** — The Elementary School Curriculum\*
- EDUC 3310** — Teaching and the Teaching Profession
- EDUC 3316** — Growth and Development of the Elementary Child\*

Plus one of the following:

- EDUC 4314** — Applications of Instruction in Classrooms
- or
- EDUC 4313** — Classroom Instruction and Management

Plus:

- EDUC 4651** — Student Teaching in the Elementary and Secondary School
- \*Must be taken concurrently and in same course section.**

### **All-Level Certification (Physical Education)**

- EDUC 3306** — The Elementary School Curriculum\*
- EDUC 3310** — Teaching and the Teaching Profession
- EDUC 3316** — Growth and Development of the Elementary Child\*

Plus one three-hour education elective:

- EDUC 4651** — Student Teaching in the Elementary and Secondary School

In order to be certified to teach in a second teaching field, all-level physical education students must also take both:

- EDUC 4314** — Applications of Instruction in Classrooms
- EDUC 4313** — Classroom Instruction and Management

**\*Must be taken concurrently and in same course section.**

### **Kindergarten Endorsement to Texas Teacher Certificate\***

- EDUC 4317** — Development and Learning in Early Childhood Education
- EDUC 4318** — Early Childhood and Kindergarten Education: Philosophy and Curriculum
- EDUC 4319** — Early Childhood Methods and Materials
- EDUC 4353** — Student Teaching in the Kindergarten Classroom

or

- EDUC 4654** — Student Teaching in Kindergarten and the Elementary School

**\*See Kindergarten Endorsement Advisor.**

### **Bilingual Education Endorsement to Texas Teacher Certificate\***

- FORL 4301** — Language Acquisition and Development
- FORL 4302** — Teaching English as a Second or Foreign Language
- EDUC 4330** — Teaching Language Arts and Reading in the Vernacular
- EDUC 4331** — Bilingual Classroom Instruction in the Content Areas

**\*See Bilingual Advisor for additional requirements.**

### **Driver Education Endorsement to Texas Teacher Certificate\***

- EDUC 4340** — Safety Education
- EDUC 4341** — Driver Education I
- EDUC 4342** — Driver Education II

**\*See Driver Education Advisor for additional requirements.**

## PROFESSIONAL TEACHER EDUCATION

### English as a Second Language Endorsement to Texas Teacher Certificate\*

**LING 3311** — Introduction to Linguistic Science — Descriptive, Applied, Contrastive

**FORL 4301** — Language Acquisition and Development

**FORL 4302** — Teaching English as a Second or Foreign Language

**EDUC 4332** — Teaching Language Arts to ESL Students

\*See English as a Second Language Advisor for additional requirements.

### Motorcycle Rider Course Instructor Certificate\*

**EDUC 4343** — Motorcycle Safety Education

\*Certificate issued by Motorcycle Safety Foundation

## READING SPECIALIZATIONS

### Elementary Reading Specialization\*

**ENGL 3365** — Children's Literature

**EDUC 4324** — Reading Instruction in the Secondary Classroom

**EDUC 4334** — Developing Reading Through Media Resources

**EDUC 4335** — Diagnosis and Correction of Reading Disabilities

**EDUC 4391** — Conference Course (Reading)

**EDUC 4392** — Practicum in Instruction (Reading)

\*See Reading Advisor

### Secondary Reading Specialization Teaching Field\*

**EDUC 4301** — Reading in the Elementary School

**EDUC 4324** — Reading in the Secondary School

**EDUC 4325** — Principles of Reading/Language Arts in the Elementary School

**EDUC 4326** — Principles of Reading/Language Arts in the Secondary School

**EDUC 4335** — Diagnosis and Correction of Reading Disabilities

**EDUC 4392** — Practicum in Instruction (Reading)

Plus: two courses from the following: ENGL 3365, PSYC 4336, EDUC 4334, FORL 4301, LING 3311

\*See Reading Advisor

## STUDENT TEACHING

Eligible students must make application for student teaching during mid-semester prior to student teaching (October 15 for spring and March 15 for fall and summer). Student teaching orientation programs will normally be scheduled in the fall and spring semesters. A limited number of secondary students may student teach in the summer session, but only when state-approved summer public school programs are available.

- A. To be eligible to enter student teaching in the secondary and all-level programs the student must:
- 1) Have completed all Education course work with a minimum grade point average of 2.5; credit earned in any professional education course below a C will not be counted toward this requirement,
  - 2) Have completed 12 semester hours in English with a minimum grade point average of 2.0,
  - 3) Have completed 90 hours of course work including 18 in each teaching field (six advanced in each),
  - 4) Possess a grade point average of 2.5 in each teaching field.
- B. To be eligible to enter student teaching in the elementary program the student must have:
- 1) Completed EDUC 3306, 3316, 4301, 4302, 4303, and 4304 with a 2.5 minimum grade point average; credit earned in any professional education course below a C will not be counted toward this requirement,
  - 2) Completed 18 hours with a minimum grade point average of 2.5 in an academic specialization area,
  - 3) Have completed 12 semester hours in English with a minimum grade point average of 2.0.
- C. Students are advised to become familiar with the Elementary Certification Handbook.

## PROFESSIONAL TEACHER EDUCATION

### EVALUATION

To complete a certification program, a student must demonstrate knowledge, skills, and attitudes indicative of competent teaching.

To be recommended to the Texas Education Agency for certification, a student must have successfully completed the following:

- A. All professional education course work prescribed for the certificate sought
  1. All professional education course work must be completed with a minimum grade point average of 2.5; credit earned in professional education course work below the grade of C will not be counted toward certification
- B. All requirements for teaching field(s) and/or academic specialization
  1. All teaching field/specialization course work must be completed with a minimum grade point average of 2.5
- C. All requirements for the baccalaureate degree including 12 semester hours of English with a minimum grade point average of 2.0
- D. Submission of all necessary documentation to the Office of the Center for Professional Teacher Education, including final transcript, application for certification, and payment of certification fee.

### TRANSFERS

- A. Individuals who have a degree and a valid certificate from another state and who seek Texas teacher certification will apply directly to the Texas Education Agency, Austin.
- B. Individuals who have a degree but are not certified in another state will be evaluated for Texas certification requirements by the Center for Professional Teacher Education. The Center will also evaluate the credentials of individuals with expired certificates.
- C. Due to changing requirements for Texas teacher certification, it is possible that course work in teacher education completed prior to the current application will not be counted toward certification requirements.
- D. Transfer students from other Texas institutions and from institutions in other states will be expected to meet UTA's approved program requirements for certification.
- E. All transfer students will be required to submit official transcripts for analysis to the Center for Professional Teacher Education and the University Admissions Office. Certification programs for transfer students will be designed on an individual basis. A minimum of nine hours in professional education must be completed at UTA in order to be recommended for certification by the Center. In addition, student teaching may be required of students seeking recommendation for certification by the Center.

### EDUCATION (EDUC)

*Director: Associate Professor Funkhouser*

*Professor Crow*

*Associate Professors Brooks, Leffingwell, Reinhartz*

*Assistant Professors Kyle, Parker, Perez, Phelps, Principe, Ryan, Strickland, Van Cleaf*

**1131. COLLEGE ADJUSTMENT (1-0) 1 hour credit** — Student counselors, under the supervision of the Counseling and Testing Office, in group discussions will communicate academic survival information, analyze potential academic and social problems, and assist in implementing individualized corrective measures. Elective only; does not count as a part of the professional certification requirements. Only pass-fail grades will be awarded. Prerequisite: entering freshman.

**2330. STUDENT LEADER EFFECTIVENESS TRAINING (3-0) 3 hours credit** — Leadership styles and theory, problem solving, responsibility of group members, public relations, organization administration, the relationship of groups to the university community, and the student organization viewed as an extension of the educational curricula. Only pass-fail grades will be awarded. Prerequisite: organization officer or permission of instructor. Elective only and does not count as part of the professional certification requirements.

**3300. AN INTRODUCTION TO EDUCATION (3-0) 3 hours credit** — Formal education programs as they occur in a school setting. The philosophies, rationales, designs, structure and organization of school programs.

**3301. HISTORY AND PHILOSOPHY OF EDUCATION (3-0) 3 hours credit** — The historical development of education combined with educational philosophy and study of current trends in education. Present education problems in light of their origins. The rise of education systems and the development of educational thought with special reference to contemporary social and political movements. Prerequisite: junior standing. Formerly EDUC 3201; credit will not be granted for both 3301 and 3201.

## PROFESSIONAL TEACHER EDUCATION

- 3303. INTRODUCTION TO BILINGUAL EDUCATION (3-0) 3 hours credit** — Foundations in bilingual education, including purposes to be served by a bilingual program, philosophical orientations, organization of programs.
- 3305. CURRICULUM DEVELOPMENT IN THE SECONDARY SCHOOLS (3-0) 3 hours credit** — The objectives of education, principles and procedures in the selection and direction of educational experiences, patterns of curriculum organization, and the procedures by which curriculum changes can be made, evaluated, and sustained. A comprehensive study of the curriculum in the student's teaching field will be required. Prerequisite: junior standing. Formerly EDUC 3205; credit will not be granted for both 3305 and 3205.
- 3306. THE ELEMENTARY SCHOOL CURRICULUM (2-2) 3 hours credit** — The exploration and study of curriculum design and implementation, instructional materials, strategies, and staff roles in programs in different elementary school settings; the examination of relationships between-curriculum decision-making and individual learning styles, developmental needs and the child's socio-cultural characteristics.
- 3309. ADOLESCENTS AND THE CLASSROOM (3-0) 3 hours credit** — Related to adolescents and the effect of the classroom environment on learning. Topics include developmental characteristics of the adolescent, including the culturally different and exceptional learner, principles of learning, environmental variables, and characteristics of effective classrooms. Includes field-based experiences.
- 3310. TEACHING AND THE TEACHING PROFESSION (3-0) 3 hours credit** — A historical perspective of how curriculum development, instructional strategies, and the professional teacher direct learning in today's schools. Topics include curriculum models, instructional models, reading and study skills, characteristics of effective communication, and an overview of schooling and the schools. Prerequisite: EDUC 3309 or concurrent enrollment.
- 3316. GROWTH AND DEVELOPMENT OF THE ELEMENTARY CHILD (2-2) 3 hours credit** — Physical, social, emotional and cognitive growth patterns of children from conception to adolescence, emphasizing social, cultural and genetic determinants of development. The special needs of children within the school environment are examined.
- 3320. MEASUREMENT AND EVALUATION IN EDUCATION (3-0) 3 hours credit** — The place of testing, measurement, and evaluation in the educational process. The basic educational guidance setting; selection, administration, scoring, and interpretation of standardized evaluation instruments; construction of various types of teacher-made tests; and problems of grading. Prerequisite: junior standing. Formerly EDUC 3220; credit will not be granted for both 3320 and 3220.
- 3335. STUDENT COUNSELOR TRAINING (3-0) 3 hours credit** — To train students to be peer counselors who will work as group leaders in EDUC 1131 during the Fall Semester. Group counseling procedures and requisite guidance materials to explain academic regulations and student services, analyze deficient study skills, initiate appropriate study habits, and make referrals when necessary. Only pass-fail grades will be awarded. Prerequisite: permission of instructor. Elective only and does not count as a part of the professional education certification requirements.
- 4301. READING IN THE ELEMENTARY SCHOOL (2-2) 3 hours credit** — Basic principles, techniques, and materials for the developmental reading program in grades 1-6. The development of sequential reading skills; diagnostic reading tests; instructional procedure for functional reading disabilities, multicultural implications for reading education, current developmental reading programs. Prerequisite: junior standing.
- 4302. LANGUAGE ARTS IN THE ELEMENTARY SCHOOL (2-2) 3 hours credit** — Language development in the elementary school; spelling, writing, reading, and speaking-listening skills; the use of instructional material with the linguistic approach; the use of techniques to build upon the child's native language skills within the culturally diverse population, tests and evaluation procedures. Prerequisite: junior standing.
- 4303. MATH AND SCIENCE IN THE ELEMENTARY SCHOOL (2-2) 3 hours credit** — The examination of instructional approaches, materials, and media pertinent to teaching math and science in the elementary school; the organization of math and science content and the selection and implementation of instructional techniques which are compatible with cultural and ethnic backgrounds, and the physical and intellectual characteristics of each child. Prerequisite: junior standing; six hours mathematics and 12 semester hours in science.
- 4304. SOCIAL STUDIES IN THE ELEMENTARY SCHOOL (2-2) 3 hours credit** — An examination of content, methods, and learning theory appropriate for elementary social studies education. Special attention to methods that promote analytical and evaluative abilities necessary for participatory democracy in a culturally diverse society. Included is a focus on organizational and instructional strategies that addresses children's special needs. Prerequisite: junior standing.
- 4306. MULTICULTURAL EDUCATION FOR TEACHERS (3-0) 3 hours credit** — The impact of culture on learning and the development of competencies for establishing multicultural components within the school curricula.
- 4309. ADVANCED INSTRUCTIONAL STRATEGIES IN THE ELEMENTARY SCHOOL (3-0) 3 hours credit** — Teaching as an integrative process. Individualization of instruction, modeling, organizing the physical environment, mediating, observing, and questioning to increase instructional effectiveness. Major focus on the needs of children in school grades kindergarten through five.

## **PROFESSIONAL TEACHER EDUCATION**

**4313. CLASSROOM INSTRUCTION AND MANAGEMENT (3-0)** 3 hours credit — Emphasizes the importance of developing and adapting instructional systems and classroom management to enhance learning in the classroom. Topics include: planning for instruction, principles of instruction, assessment of students including the culturally different and exceptional learner, adapting instruction to meet student needs, and management of the classroom. Prerequisites: EDUC 3309 and 3310.

**4314. APPLICATION OF INSTRUCTION IN CLASSROOMS (2-4)** 3 hours credit — The application of learning and teaching processes, concept instruction, writing and implementing instructional goals and objectives, content reading, organizing content for instruction, use of audio and visual aids, strategies for individualization, and assessment and adaptation of instruction based on learner feedback. Features lab-based micro-teaching and field-based teaching experience. Prerequisite: EDUC 4313 or concurrent enrollment.

**4317. DEVELOPMENT AND LEARNING IN EARLY CHILDHOOD EDUCATION (2-2)** 3 hours credit — Human growth and development, including developmental anomalies, from birth through early childhood with emphasis on cognitive, social, emotional, and physical growth. Attention to research on learning in the young child and the role of conceptual development in early childhood education. Prerequisite: EDUC 3306 and 3316. (Credit will not be granted for EDUC 4307, 4308, and 4317).

**4318. EARLY CHILDHOOD AND KINDERGARTEN EDUCATION: PHILOSOPHY AND CURRICULUM (2-2)** 3 hours credit — Early childhood education; historical and contemporary perspectives in terms of philosophy, curriculum, physical setting, and materials. Prerequisite: EDUC 4317.

**4319. EARLY CHILDHOOD METHODS AND MATERIALS (2-2)** 3 hours credit — A didactic and experiential approach to working with young children. Emphasis is on developing and adapting materials appropriate to the developmental levels of young children and implementing the use of materials in a field-based experience. Prerequisite: EDUC 4317, 4318. (Credit will not be granted for EDUC 4307, 4308, and 4319).

**4320. GROUP TECHNIQUES FOR THE CLASSROOM (3-0)** 3 hours credit — Research, principles, and methodology of group dynamics and group leadership within the classroom. Supervised experience in group leadership will be required. Formerly EDUC 4220; credit will not be granted for both 4320 and 4220.

**4321. EDUCATING HANDICAPPED STUDENTS (3-0)** 3 hours credit — A survey of the learner characteristics and the instructional needs of exceptional (handicapped) students in public school settings. Emphasis will be on academic and personal needs of handicapped students in resource and regular classrooms.

**4324. READING INSTRUCTION IN THE SECONDARY CLASSROOM (3-0)** 3 hours credit — Reading in the content fields. The nature and scope of the total reading program for the secondary student.

**4325. PRINCIPLES OF READING/LANGUAGE ARTS INSTRUCTION FOR THE ELEMENTARY CLASSROOM (3-0)** 3 hours credit — Reading processes and instruction relevant to attaining reading/language arts skills. The use and interpretation of instruments related to the diagnosis of reading/language arts disabilities. The analysis of processes and needed skills for reading/language arts (grades K through 6). Prerequisite: EDUC 4301 or permission of instructor.

**4326. PRINCIPLES OF READING AND LANGUAGE ARTS INSTRUCTION FOR THE SECONDARY CLASSROOM (3-0)** 3 hours credit — Reading processes, language processes, and instruction relevant to attaining reading/language arts skills. The use and interpretation of instruments related to the diagnosis of reading/language arts disabilities. The analysis of the processes and skills for reading/language arts (grades 7 through 12). Prerequisite: EDUC 4324 or permission of instructor.

**4329. CLASSROOM MANAGEMENT (3-0)** 3 hours credit — Designed to provide teachers with skills and competencies related to effective classroom management. Includes the use of existing research, models, and applications of control, and classroom management systems in educational settings.

**4330. TEACHING LANGUAGE ARTS AND READING IN THE VERNACULAR (3-0)** 3 hours credit — Selection of curriculum materials and teaching techniques for a bilingual classroom with emphasis on language arts and reading skill acquisition.

**4331. BILINGUAL CLASSROOM INSTRUCTION IN THE CONTENT AREAS (3-0)** 3 hours credit — Selection of curriculum materials and teaching techniques for a bilingual classroom with emphasis on necessary vocabulary in social studies, mathematics and science.

**4332. TEACHING LANGUAGE ARTS TO ESL STUDENTS (3-0)** 3 hours credit — Methods and materials of teaching the English language skills to speakers of other languages. Emphasis will be given to the techniques of teaching reading and writing language skills. Prerequisite: FORL 4302 or permission of instructor.

**4334. DEVELOPING READING THROUGH MEDIA RESOURCES (3-0)** 3 hours credit — A course in the utilization of a variety of print and non-print resources in teaching reading. Prerequisites: ENGL 3365 and EDUC 4301, 4325.



## PROFESSIONAL TEACHER EDUCATION

**4335. DIAGNOSIS AND CORRECTION OF READING DISABILITIES** (3-0) 3 hours credit — A study of the causes of reading disabilities, techniques of diagnosis, analysis and correction. The development of case studies using appropriate techniques of diagnosis, analysis, and correction. Prerequisites: EDUC 4301, 4326.

**4340. SAFETY EDUCATION** (3-0) 3 hours credit — Designed to promote home, school, traffic, and general safety.

**4341. DRIVER EDUCATION I** (3-0) 3 hours credit — The first of a two-part course designed to prepare individuals to teach driver education. Includes theory, teaching methods, and simulator practice in driver education.

**4342. DRIVER EDUCATION II** (1-11) 3 hours credit — The second of a two-part course designed to prepare individuals to teach driver education. Laboratory procedures include use of driving simulators and automobiles in both controlled and actual traffic situations. Prerequisite: EDUC 4341.

**4343. MOTORCYCLE SAFETY EDUCATION** (3-0) 3 hours credit — A course designed to certify participants as motorcycle safety instructors: includes exposure to motorcycle safety equipment, state laws, IPDE process, basic and emergency riding maneuvers, and basic maintenance; combines audiovisual materials for the classroom with actual range exercises.

**4353. STUDENT TEACHING IN THE KINDERGARTEN CLASSROOM** (1-15) 3 hours credit — Supervised and directed teaching experience in a kindergarten classroom. The student will be assigned to a public school for a period of eight weeks for the entire day. Seminars will be required during the eight weeks. Application must be made by midsemester preceding enrollment. Prerequisite: formal admission to student teaching, EDUC 4317, 4318, 4319.

**4354. STUDENT TEACHING IN THE ESL CLASSROOM** (1-15) 3 hours credit — Supervised and directed teaching experience in an ESL classroom. The student will be assigned to a public school for a period of eight weeks for the entire day. Seminars will be required. Prerequisites: formal admission to student teaching, LING 3311, FORL 4301, 4302, EDUC 4332.

**4391, 4291, 4191. CONFERENCE COURSE** (Variable credit from 1 to 3 semester hours as arranged) — Independent study in the preparation of a project or a paper on a research topic; consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: consent of the instructor.

**4392, 4292, 4192. PRACTICUM IN INSTRUCTION** (Variable credit from 1 to 3 semester hours as arranged) — The practice of diagnostic and prescriptive teaching strategies to meet pupil needs. May be repeated for credit. Prerequisite: consent of the instructor.

**4650. STUDENT TEACHING IN THE SECONDARY SCHOOL.** (1-15) 6 hours credit — Supervised and directed teaching experiences in the secondary school. The student will be assigned to a public school for one-half day for one semester (or equivalent time). Application must be made by the mid-semester preceding enrollment. Prerequisite: formal admission to student teaching.

**4651. STUDENT TEACHING IN THE ELEMENTARY AND SECONDARY SCHOOLS** (1-15) 6 hours credit — Supervised and directed teaching experiences with equal periods of time in both elementary and secondary teaching assignments for students seeking all-level certification. The student will be provided with public school assignments for 14 weeks for the entire day. Application must be made by the mid-semester preceding enrollment. Prerequisite: formal admission to student teaching.

**4652. STUDENT TEACHING IN THE ELEMENTARY SCHOOL** (1-15) 6 hours credit — Supervised and directed teaching experiences in the elementary school. The student will be assigned to a public school for a period of 12 weeks for the entire day. Seminars will be required. Application must be made by mid-semester preceding enrollment. Prerequisite: formal admission to student teaching.

**4654. STUDENT TEACHING IN KINDERGARTEN AND THE ELEMENTARY SCHOOL** (1-15) 6 hours credit — Supervised and directed teaching experience for equal periods of time in both the kindergarten and elementary school. The student will be assigned to a public school for 14 weeks for the entire day. Seminars will be required. Application must be made by the mid-semester preceding enrollment. Prerequisite: formal admission to student teaching.

**4655. STUDENT TEACHING IN THE ESL AND REGULAR CLASSROOM** (1-15) 6 hours credit — Supervised and directed teaching experience for equal periods of time in both ESL classroom and regular classroom. The student will be assigned to a public school for 12 weeks for the entire day. Seminars will be required. Prerequisite: formal admission to student teaching, LING 3311, FORL 4301, 4302, EDUC 4332.

### SECONDARY Plan I Teaching Fields

**Biology Teaching Field\*** (27 semester hours):

1447, 1448, 2345, 2450 or 2313 (physical education majors may substitute 2455), 3315, and nine advanced hours to be selected with joint approval of the biology and education advisors.

\*Students majoring in biology refer to the degree requirements in the Department of Biology section of this catalog for additional required courses.

## PROFESSIONAL TEACHER EDUCATION

### **Chemistry Teaching Field\*** (25 semester hours):

1301 (Students receiving advanced placement credit for freshman/sophomore level chemistry courses must take additional advanced level courses to total 25 semester hours), 1302, 1284, 2451, 3301, 3450, 3305, plus three additional hours of advanced chemistry for which prerequisites have been met.

**\*Students majoring in chemistry refer to the degree requirements in the Department of Chemistry section of this catalog for additional required courses.**

### **Communication Teaching Fields**

#### **Drama** (24 semester hours):

DRAM 1302, 1307, 2304, 2343, and 3342.

Three hours from DRAM 3301, 3305, 3310, 3321, 3322, 3323, 3343.

Three hours from DRAM 4302, 4303, 4304, 4309, 4321, 4330, 4360, COMM 4320.

Three additional hours advanced drama.

#### **Journalism** (24 semester hours):

COMM 1300 and 4310.

JOUR 1345, 2340, 2346, 3335, and 3345.

JOUR 3350 or 4326.

#### **Speech** (24 semester hours):

SPCH 1301, 1302, 2303, 3321.

SPCH 2304 or DRAM 2343.

SPCH 3305 or 3307.

Three hours from SPCH 3306, 3307, 3309, 3310, 3312, 3315, 3316, 3322.

Three hours from SPCH 4300, 4302, 4321, 4334, 4360, COMM 4315.

### **Computer Information Systems Teaching Fields** (24 semester hours):

#### **Mathematics Option:**

CSE 2306, BUSA 2303, MATH 3341, 3345, and three computer-related semester hours each from MATH, CSE, and SYAN. Plus three additional computer-related semester hours from any one of the above. See math advisor.

#### **Systems Analysis Option:**

SYAN 3305, 3302, 3306, 4306, BUSA 2303, SYAN 3320, 4302, 4307. See systems analysis advisor.

#### **Computer Science and Engineering Option:**

CSE 2304, SYAN 3305, CSE 3341, 3345, 3306, plus nine additional computer-related semester hours from SYAN, CSE, or MATH. See computer science advisor.

### **Earth Science** (27 semester hours):

GEOL \*1345, \*1346, \*PHYS 1345, GEOL \*2445, \*2446, and \*\*3301, \*\*CE 3331, and GEOL \*3441, or \*3443.

**\*Indicates a laboratory course (40% to 80% of instructional time is devoted to student laboratory courses).**

**\*\*Indicates that labs will be arranged for those students seeking certification in earth science.**

### **Economics Teaching Field\*** (24 semester hours):

2305, 2306, 3303, 3310, and 3312, plus nine additional hours in advanced economics.

### **English Teaching Field\*** (24 semester hours):

1301 and 1302 plus any six hours of 2000-level literature.

Group I (Language and Grammar), 3 hours: 4301 or 4302.

Group II (English Literature), 3 hours: 3303, 3304, 3305, 3307, 3308, 3309, 3311, 3312, 3314, 3321, 4303, 4304, 4305, 4322, 4326, 4327, 4328, 4333, 4334.

Group III (American Literature), 3 hours: 3351, 3352, 4307, 4309, 4311, 4312, 4313, 4316, 4319, 4320, 4336.

Group IV (Comparative, Classical, and Continental), 3 hours: 3301, 3302, 3306, 3316, 3318, 3320, 3323, 3324, 3325, 3326, 3330, 3333, 3334, 3337, 3339, 4329, 4337.

**\*Students majoring in English refer to the Department of English section of this catalog for additional required courses.**

### **Foreign Language Teaching Fields\***

## PROFESSIONAL TEACHER EDUCATION

**French** (35 semester hours for major, 26 semester hours for a second teaching field: 1441-1442-2313-2314 (or equivalent), 3313, 4339, plus six advanced hours (minor) or 15 advanced hours of language and/or literature (major); plus LING 3311.

**German** (35 semester hours for major, 26 semester hours for a second teaching field): 1441-1442-2313-2314 (or equivalent), 3313, 3314, 4339, plus three advanced hours (minor) or 12 advanced hours of language and/or literature (major); plus LING 3311.

**Russian** (35 semester hours for major, 26 semester hours for a second teaching field): 1441-1442-2313-2314 (or equivalent), 3311, plus nine advanced hours (minor) or 18 advanced hours of language and/or literature (major); 4339 recommended elective; plus LING 3311.

**Spanish** (35 semester hours for major, 26 semester hours for a second teaching field): 1441-1442-2313-2314 (or equivalent), 3314, 3315, 4339, plus three advanced hours (minor) or 12 advanced hours of language and/or literature (major); plus LING 3311.

**\*Students majoring in a foreign language refer to the Department of Foreign Language section of this catalog for additional required courses.**

### **Physical Education Teaching Fields\***

Physical Education Teaching Field (24 semester hours): 1315, 2302 or 2341, 2306, 3301, 3315, 3320, 4325, and 4330. \*\*

**\*Student majoring in Physical Education refer to the Department of Physical Education section of this catalog for additional required courses.**

**\*\*Student electing this field will be required to take the four activity sections designed for physical education majors. A current Red Cross First Aid Certification must be held before a student will be approved for student teaching.**

### **Health Teaching Field (24 semester hours):**

1301, 1316\*, 2317, 2340\*, 3312, 3320\*, 3330, 4312, 4320, 4391.

**\*Required courses; 15 hours may be selected from remaining courses.**

### **History Teaching Field\* (24 semester hours):**

24 hours (with at least 12 advanced hours) to include 1311, 1312, 2301, 2302, plus six semester hours from each of Group A and Group B.

Group A — United States History: 3321, 3322, 3323, 3324, 3325, 3328, 3330, 3334, 3342, 3346, 3347, 3348, 3349, 3352, 3353, 3354, 3355, 3356, 3357, 3358, 3359, 3360, 3361, 3362, 3363, 3364, 3365, 3366, 3367, 3368, 3369, 3370, 3371, 3372, 3373, 4301.

Group B — World History: 3374, 3375, 3376, 3377, 3378, 3379, 3381, 3382, 3383, 3384, 3385, 3386, 3388, 3389, 4301, 4346, 4347, 4348, 4349, 4350, 4351, 4352, 4354, 4355, 4357, 4358, 4359, 4360, 4361, 4362, 4363, 4364, 4365, 4366, 4367, 4368, 4370, 4374, 4375, 4378, 4379, 4382, 4384, 4385, 4387, 4388.

**\*Students majoring in history refer to the degree requirements in the Department of History section of this catalog for additional required courses.**

### **Life-Earth Middle School (26 semester hours):**

Eight semester hours of laboratory courses in general biology: BIOL 1447, 1448, plus six semester hours of laboratory courses in general earth science: GEOL 1345\*, 1346\*

12 semester hours from the following: Six semester hours of laboratory courses in biology or earth science, or a combination of these, and six semester hours of advanced level courses in biology or earth science or a combination of these:

A. BIOL 2345, 2450, plus six semester hours from: 3344, 3345, 3315, 3348, 3455, 3443, 3446, 4338, 4344, 4346, 4348, 4450, 4460, 4680 (Note: All of the preceding are lab courses).

B. Earth Science: GEOL 2445, 2446, plus six semester hours from: 3441, 3442, 3443, 4345 (Note: All of the preceding are lab courses), 3301, 3302, 3304, 3305, 3306, 3307, 3308, 3309, 4315.

**\*See the department chairman about special section for those seeking certification.**

### **Mathematics Teaching Field\* (24 semester hours):**

Six semester hours from Math 1302 or 1303 or 1324, 1325. Plus 1326, 2325, and 12 semester hours from Math 3301, 3307, 3313, 3321, 3330, 3341, 3345. If a student's first course is 1325, three additional hours will be required.

**\*Students majoring in mathematics refer to the degree requirements in the Department of Mathematics section of this catalog for additional required courses.**

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### Physical Science (24 semester hours):

24 semester hours from A and B, plus either C or D:

- A. Six semester hours chemistry: 1361, 1362, or 1461, 1462.
- B. Six semester hours physics: 1341, 1342 or 1441, 1442 or 1443, 1444.
- C. 12 semester hours from the following: Six semester hours laboratory courses in physical science (currently UTA does not offer courses designated physical science; such courses are offered at neighboring institutions, and credit for these courses will be honored in the certification program) and six semester hours from the following: CHEM 3305, 3450, or PHYS 3313, 3366, 3445, 3446 or other approved course(s) in chemistry, physics, or physical science.
- D. 12 semester hours from the following: CHEM 3305, 3450 or PHYS 3313, 3366, 3445, 3446, or other approved advanced course(s) in chemistry, physics, or physical science.

### Physics Teaching Field\* (24 semester hours):

- (1) Eight semester hours from Group A, B, or C: A-1443, 1444, B-1441, 1442. C-1341, 1342, 1288.
- (2) Six semester hours from Group A or B: A-2311, 2302, 3321, B-2311, 3313, 3321.
- (3) One course from: 2445, 3445, 3446, 3183, 3366.
- (4) Plus 4117.
- (5) Plus additional semester hours to total 24 with 12 advanced hours.

\*Students majoring in physics refer to the degree requirements in the Department of Physics section of this catalog for additional required courses.

### Political Science Teaching Field\* (24 semester hours):

POLS 2311 and 2312, plus six hours from each of the three following categories:

Group A: U.S. Government and Politics — 1301, 3303, 3305, 3306, 3307, 3308, 3309, 3311, 3312, 3327, 3336, 4303, 4304, 4320, 4321, 4326, 4330, 4336, 4338, 4351, 4352.

Group B: Political Theory, Public Law, and Methodology — 3301, 3310, 3313, 3330, 3331, 3332, 3333, 3334, 3335, 4322, 4324, 4325, 4327, 4328, 4329, 4331, 4332, 4334.

Group C: Comparative Government and International Relations — 3302, 3304, 3314, 3316, 3318, 3329, 4311, 4312, 4313, 4315, 4355, 4360, 4362, 4363, 4364, 4387.

\*Students majoring in political science refer to the degree requirements in the Department of Political Science section of this catalog for additional required courses.

### Psychology Teaching Field\* (26 semester hours):

1315 or 1311 or 3300, 2441, and 2342.

Four hours from the following: 3440, 3441, 3332 and 3142, 3315 and 3144, 3445.

One course from each of the Areas A, B, and C (4326 may be substituted for one of the courses in Areas A, B, or C). Three advanced hours approved by the psychology and education advisors.

A. 2310, 3326, 3330, 4313.

B. 4316, 4335, 4336.

C. 3307, 3309, 3314, 3315.

\*Students majoring in psychology refer to the degree requirements in the Department of Psychology section of this catalog for additional required courses.

### Reading Teaching Field (24 semester hours):

EDUC 4301, 4324, 4325, 4326, 4335, 4392, and six semester hours from the following: ENGL 3365, PSYC 4336, EDUC 4334, FORL 4301, LING 3311.

### Sociology Teaching Field\* (24 semester hours):

1311, 2341, 3352, and 4311. The prescribed number of advanced hours from the following groups:

Group I: Three hours from 3317, 3319, 3321, 4317, 4331.

Group II: Three hours from 3310, 3338, 3341, 3350, 3351, 3353, 4310, 4312, 4313, 4319.

Group III: Three hours from 3315, 3320, 3323, 3354, 4318, 4335, 4361.

Group IV: Three hours from 1312, 3312, 3313, 3355, 4303, 4314.

\*Students majoring in sociology refer to the degree requirements in the Department of Sociology section of this catalog for additional required courses.

**SECONDARY Plan II Teaching Fields**

**Art Teaching Field\*** (66 semester hours):

Art Core: 33 hours including 1309, 1310, 1345, 1346, 1347, 1348, 2311, 2345, 2346, plus three hours of two-dimensional study to be selected from 2354, 2361, 2371, 3343, 3346, 3349, 3351, 3357, 3359, and three hours of three-dimensional study to be selected from 3341, 3353, 3363, 3367.

Art Education: 24 hours including 2377, plus 12 hours elected from 3322, 3375, 3376, 3377, plus approved electives in studio art and art education.

Art History: Nine advanced hours as outlined in the Department of Art section of this catalog.

**\*Students majoring in art refer to the degree requirements in the Department of Art section of this catalog for additional required courses.**

**Music Teaching Field\*\*** (74 hours):

MUSI 1185, 1186, 1205, 1206, 2185, 2186, 2205, 2206, 2300, 3300, 3301; 14 hours of performance concentration; 1180, 1181, 2180, 2181, [piano concentrates must substitute four hours of 0170, (accompanying)]; four hours of 0171 (vocal concentrates must take piano). In addition:

**Secondary Choral Certification** requires 3101, 3104, 3302, 3303 or 3304, 3306, 3310\*, 4101, 4306\*, 4309\*, 0170 (seven hours of choir), 0170 (two hours of opera workshop), one course selected from 1103, 1104, 2103, 2104.

**Secondary Instrumental Certification** requires 1103, 1104, 2103, 2104, 3104, 3200, 3201, 3305, 3311\*, 4301, 4305\*, three hours selected from 2301, 3303, 3304; 0170 (three hours of marching band, four hours of wind ensemble/concert band; string concentrates take seven hours of orchestra).

**\*Must be completed prior to Student Teaching.**

**\*\*Students majoring in music refer to the degree requirements in the Department of Music section of this catalog for additional required courses.**

**Science Composite Teaching Field** (48 semester hours):

GEOL 1345, 1346, 3301, 3441, 3442, 3443, plus three additional advanced hours in geology, BIOL 1447, 1448. CHEM 1301 (to be omitted on advanced placement), 1302, 1284. PHYS 1341, 1342. Plus two to five additional science hours.

**Social Science Composite Teaching Field** (48 semester hours):

History Option: history, 24 semester hours to include 2301, 2302, 4389, plus six semester hours from Group A and six semester hours from Group B. \* social studies, 24 semester hours to include ANTH 1306 and 3343, \*\* ECON 2305 and 2306, plus six advanced hours of political science and six advanced hours of Sociology.

**\*Completion of either HIST 3363 or 3364 is recommended for those planning to teach in Texas secondary schools.**

**\*\* ANTH 3343 is a course entitled Ecological and Cultural Geography.**

Sociology Option: sociology, 24 semester hours to include 1311, 2341, 3352, and 4311.

Social Studies, 24 semester hours to include ANTH 3343\*, ECON 2305 or 2337; HIST 1301, 1302 and 3363 or three advanced hours; political science, six advanced hours; PSYC 3300.

**\*ANTH 3343 is a course entitled Ecological and Cultural Geography.**

**ALL-LEVEL Plan II Teaching Fields**

**Art Teaching Field\*** (66 semester hours):

Art Core: 33 hours including 1309, 1310, 1345, 1346, 1347, 1348, 2311, 2345, 2346, plus three hours of two-dimensional study to be selected from 2354, 2361, 2371, 3343, 3346, 3349, 3351, 3357, 3359, and three hours of three-dimensional study to be selected from 3341, 3353, 3363, 3367.

Art Education: 24 hours including 2377, 3335, 3336, plus six hours elected from 3322, 3375, 3376, 3377, plus approved electives in studio art and art education.

Art History: Nine advanced hours as outlined in the Department of Art section of this catalog.

**\*Students majoring in art refer to the degree requirements in the Department of Art section of this catalog for additional required courses.**

**Music Teaching Field\*\*** (74 semester hours):

MUSI 1185, 1186, 1205, 1206, 2185, 2186, 2205, 2206, 2300, 3300, 3301; 14 hours of performance concentration; 1180, 1181, 2180, 2181 [piano concentrates must substitute four

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hours of 0170, (accompanying)]; four hours of 0171 (vocal concentrates must take piano). In addition:

**All-Level Certification** (choral) requires 3101, 3104, 3302, 3303 or 3304, 3306, 3309, 3310\*, 4101, 4306\*, 4309\*, 0170 (six hours of choir, one hour of opera workshop).

**All-Level Certificate** (instrumental) requires 1103, 1104, 2103, 2104, 3200, 3305, 3309, 3311\*, 4301, 4305\*, three hours selected from 2301, 3303, 3304; 0170 (three hours of marching band, four hours of wind ensemble/concert band; string concentrates take seven hours of orchestra).

\***Must be completed prior to Student Teaching.**

\*\***Students majoring in music refer to the degree requirements in the Department of Music section of this catalog for additional required courses.**

**Physical Education Teaching Field\*** (27 semester hours):

1315, 2288, 2306, 3301, 3315, 3320, 3430, 4325, and 4330. Students electing this field will be required to take the four activity sections designed for physical education majors.

Current Red Cross First Aid Certification must be held before a student will be approved for student teaching.

\***Students majoring in physical education refer to the degree requirements in the Department of Physical Education section of this catalog for additional required courses.**

**Speech-Drama Teaching Field** (48 semester hours):

Speech (24 semester hours): 1301, 1302, 2303, 3305, 3315, 3321, 4360, and three additional advanced hours.

Drama (24 semester hours): 1307, 2304, 2343, 3312, 3322, 3342, 4360, and three additional advanced hours.

**ELEMENTARY Plan I Academic Specialization — Reading Specialization** (18 semester hours)

**Reading Specialization** (18 semester hours):

ENGL 3365, EDUC 4324, 4334, 4335, 4391, 4392.

**ELEMENTARY Plan II Academic Specializations — Liberal Arts** (Dual Major in Specialization and Elementary Education)

**English Teaching Specialization\*** (24 semester hours):

1301 and 1302; any six hours of 2000-level literature.

Group I (Language and Grammar), three hours: 4301 and 4302.

Group II (English Literature), three hours from: 3303, 3304, 3305, 3307, 3308, 3309, 3311, 3312, 3314, 3321, 4303, 4304, 4305, 4322, 4326, 4327, 4328, 4333, 4334.

Group III (American Literature), three hours from: 3351, 3352, 4307, 4309, 4311, 4312, 4313, 4316, 4319, 4320, 4336.

Group IV (Comparative, Classical, and Continental), three hours from: 3301, 3302, 3306, 3316, 3318, 3320, 3323, 3324, 3325, 3326, 3330, 3333, 3334, 3337, 3339, 4329, 4337.

Twelve hours of work from two groups of electives (see departmental counselor).

\*\***Combination of Courses (12 semester hours).**

\***See English departmental counselor for additional degree requirements.**

**History Teaching Specialization\*** (24 semester hours):

24 hours (with at least 12 advanced hours) to include 1311, 1312, 2301, 2302, plus nine semester hours from each of Group A and Group B.

Group A — United States History: 3321, 3322, 3323, 3324, 3325, 3328, 3330, 3334, 3342, 3346, 3347, 3348, 3349, 3352, 3353, 3354, 3355, 3356, 3357, 3358, 3359, 3360, 3361, 3362, 3363, 3364, 3365, 3366, 3367, 3368, 3369, 3370, 3371, 3372, 3373, 4301.

Group B — World History: 2313, 2314, 3374, 3375, 3376, 3377, 3378, 3379, 3381, 3382, 3383, 3384, 3385, 3386, 3388, 3389, 4301, 4346, 4347, 4348, 4349, 4350, 4351, 4352, 4354, 4355, 4357, 4358, 4359, 4360, 4361, 4362, 4363, 4364, 4365, 4366, 4367, 4368, 4370, 4374, 4375, 4378, 4379, 4382, 4384, 4385, 4387, 4388.

\***Combination of Courses (12 semester hours).**

\*\***See History departmental counselor for additional degree requirements.**

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### Foreign Language Teaching Specialization\*

**French** (35 semester hours for major): 1441-1442-2313-2314 (or equivalent), 3313, 4339, plus 15 advanced hours of language and/or literature (major); plus LING 3311.

**German** (35 semester hours for major): 1441-1442-2313-2314 (or equivalent), 3313, 3314, 4339, plus 12 advanced hours of language and/or literature (major); plus LING 3311.

**Russian** (35 semester hours for major): 1441-1442-2313-2314 (or equivalent), 3311, plus 18 advanced hours of language and/or literature (major); 4339 recommended elective; plus LING 3311.

**Spanish** (35 semester hours for major): 1441-1442-2313-2314 (or equivalent), 3314, 3315, 4339, plus 12 advanced hours of language and/or literature (major); plus LING 3311.

**Bilingual Education/Spanish** (35 semester hours of Spanish): 1441-1442-2313-2314 (or equivalent), 3301, 3314, 3315, 4339, plus nine advanced hours of language and/or literature (major); FORL 4301, 4302; EDUC 3303, 4330, 4331; LING 3311; plus HIST 3368 or SPAN 4317 (SPAN 4317 may count as part of the advanced hours in Spanish).

\*See Foreign Language departmental counselor for additional degree requirements.

### Communication Teaching Specialization

**Speech** Specialization (24 semester hours): SPCH 1301, 1302, 2303, and 3321; SPCH 2304 or DRAM 2343; SPCH 3305 or 3307; three hours from 3306, 3307, 3309, 3310, 3312, 3315, 3316, 3322, 3323; three hours from SPCH 4300, 4302, 4321, 4334, 4360, COMM 4315.

**Drama** Specialization (24 semester hours): DRAM 1302, 1307, 2304, 2343, and 3342; three hours from DRAM 3301, 3305, 3310, 3321, 3322, 3323, 3343; three hours from DRAM 4302, 4303, 4304, 4309, 4321, 4330, 4360, COMM 4320; three additional hours advanced drama.

### Physical Education Teaching Specialization\* (26 semester hours):

1315, 2288, 2289, 2306, 3301, 3315, 3430, 4325, and 4330. Students electing this area will be required to take the four activity sections designed for physical education majors.

Current Red Cross First Aid Certification must be held before a student will be approved for student teaching.

\*\*Combination of Courses (12 semester hours).

\*See Physical Education departmental counselor for additional degree requirements.

\*\*Student must see Elementary Education Advisor concerning fulfillment of the required combination of courses.

### ELEMENTARY Plan II Academic Specializations\*\* — Science (Dual Major in Specialization and Elementary Education)

#### Chemistry Teaching Specialization (26 semester hours):

1302\*, 1284, 2451, 3301, 3450, 3350, plus seven additional hours with at least four hours to be selected from 3307, 3310, 4101, 4216, or 4301.

\*Students who have not had high school chemistry and do not pass the chemistry placement examination must begin with 1301.

#### Economics Teaching Specialization (24 semester hours):

2305, 2306, 3303, 3310, and 3312, plus nine additional hours in advanced economics.

#### Geology Teaching Specialization (25 semester hours):

1345, 1346, 2445, 2446, 3441, 3443, and three advanced hours of geology.

#### Mathematics Teaching Specialization (24 semester hours):

1325, 1326, 2325, 2326, plus 12 hours from 3301, 3307, 3310, 3313, 3330, 3341.

#### Physics Teaching Specialization (26 semester hours):

2311, 3183, 3313, 4117, plus 18 additional hours of which a minimum of seven must be advanced.

\*\*Combination of Courses (12 semester hours). See Elementary Advisor.

\*See departmental advisor for additional degree requirements.





# The College of ENGINEERING

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The economic prosperity, quality of life, and health of every American are directly affected by advances in technology. Engineers are an essential element in American technology. As a result of the ingenuity and innovation of today's engineers, Americans have convenient, affordable energy, water, shelter, food, transportation, communications, recreation, entertainment, health care, and waste disposal. The products and services of engineers touch everyone's lives, everyday. Engineers are the cornerstone of America's economic growth and prosperity, now and in the future. The demand for engineers equals or exceeds that of any other profession. The demand also exceeds the present supply; a situation that is expected to extend into the foreseeable future. Engineering is a very promising, rewarding, and satisfying career for those with the desire, daring, and skill to meet the challenges of rapidly changing technologies and complex social problems in need of pragmatic solutions.

The College of Engineering provides an opportunity for study in several branches of engineering through a wide variety of courses taught by an excellent faculty. Baccalaureate degree programs are offered in aerospace engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering. These programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).<sup>\*</sup> Graduate degrees through the Ph.D. are offered in each of these disciplines plus several other specialty areas: biomedical engineering, computer science, engineering mechanics, and materials science.

## PREPARING FOR ENGINEERING

Engineering achievement rests heavily upon a foundation of mathematics and science. Furthermore, the successful practice of engineering demands as a primary requisite the ability to communicate facts and ideas. The engineer must comprehend and present ideas with precision and clarity. The prospective engineering student, therefore, should prepare by selecting the proper courses. It is desirable that a student have the following high school credits: four years of English, one year of graphics (mechanical drawing, or similar), one year of physics, one year of chemistry, and four years of mathematics including two years of algebra, one year of geometry and one-half year of trigonometry. A student not having these courses may still enroll in the College of Engineering, but should recognize that it may lengthen the duration of his/her program.

<sup>\*</sup>A baccalaureate degree is also offered in Computer Science & Engineering. Accreditation of this program is pending.

## **ENGINEERING**

### **PROFESSIONAL PROGRAM**

The undergraduate program in the College of Engineering consists of two divisions: Pre-Engineering Program and Professional Program. Broadly speaking, these correspond to the first two years of course work and the last two years of course work, respectively. Students have the opportunity in the pre-engineering courses to demonstrate their aptitude for engineering and to be evaluated at a point in their academic careers that enables them to easily transfer to a more suitable major, if appropriate, or to be encouraged that they have displayed those qualities necessary to succeed in the courses to be taken during the final two years. The evaluation of a pre-engineering student's performance is made by the faculty advisor, department chairman, College of Engineering Committee on Admissions, and the Dean of Engineering at the time the student applies for admission to the Professional Program. Acceptance to the Professional Program is acknowledged by a letter from the Dean of Engineering and by formal submission of the student's degree plan to the Registrar. Admission to the Professional Program is a major milestone in the life of a UTA engineering student.

All students, freshman and transfer students, upon initial admission to the College of Engineering are classified as pre-engineering majors in their chosen academic department or in General Engineering. If a student elects to change majors within the college, he/she enters the new department at the pre-engineering level and subsequently applies for the Professional Program in that department. Non-engineering students may change into engineering providing they meet the minimum SAT or ACT score requirements of the college. These students will enter as pre-engineering majors.

Pre-engineering students may, with the permission of their department chairman, enroll in junior-level engineering courses. However, during that semester, the student must also be enrolled for those courses necessary to complete the pre-engineering requirements and the student must have a GPA of at least 2.0. This privilege is limited to a maximum of 21 semester hours of professional-level junior courses in engineering; no senior-level engineering courses are open to pre-engineering students. A pre-engineering student having a GPA of less than 2.0 is not eligible to register or receive credit for professional-level courses in engineering.

In the semester in which the student expects to complete the pre-engineering requirements, he/she must apply to the department for nomination to the Professional Program. Nominations for admission to the Professional Programs are submitted by the student's major department to the College of Engineering Committee on Admissions (CECA). Following its deliberation, the CECA submits its recommendations to the Dean of Engineering who makes the final determination on admission. The CECA is responsible for determining the capability of the student to master the professional-level material, and the suitability of the student to enter the engineering profession. The student's academic performance, as indicated by grades and number of withdrawals (grade of W); character, as indicated by record of academic honesty; maturity, as indicated by awards and participation in student activities, and other relevant factors may be considered by the CECA in reaching a decision. The minimum grade point average required to be considered by the CECA for admission to the Professional Program is 2.0 in the required engineering, mathematics, and science courses and 2.0 in all courses applicable to the degree sought.

The pre-engineering courses applicable to a specific degree program are specified by the respective academic departments. In general, these consist of the basic English, mathematics, science, and design graphics courses. The department chairmen may specify additional courses when necessary to obtain adequate information upon which to base a recommendation for admission of a student to the Professional Program.

### **TRANSFER STUDENTS**

The College of Engineering welcomes students who transfer from other colleges. In some cases there are questions about equivalency of courses, and in such cases students should inquire in the Office of the Dean of Engineering. Prospective transfer students should note that there are certain engineering courses in the sophomore year that may not be available at another college, and it may be desirable to transfer before the completion of the sophomore year to avoid extending the time necessary to complete the degree.

Students planning to attend another college prior to coming to UTA often are counseled by the College of Engineering before entering college to aid them in planning their programs of courses. The Office of the Dean of Engineering has catalogs from all Texas senior colleges and universities and can advise students about degree program planning for any of the schools of engineering in the state.

For admission to the College of Engineering, transfer students who are U.S. citizens must have a 2.0 (C) combined grade-point average of mathematics, science, and engineering courses. Interna-

tional students must have a 2.5 grade-point average in these courses. Courses taken by transfer students in which a grade of D was received at the transferring institution will not be accepted for credit toward an engineering degree by the College of Engineering.

Transfer students should make application for admission at least 45 days prior to entering UTA to allow for proper evaluation of their transcripts.

Students transferring into the College of Engineering enter as pre-engineering majors. It will be necessary for transfer students to establish a satisfactory academic record at UTA prior to their nomination to the Professional Program. This may include up to 30 credit hours of UTA courses designated by the department chairman. Before credit is granted for engineering courses toward an engineering degree at UTA for work done at a school which does not have an engineering program accredited by the Accreditation Board for Engineering and Technology, the College of Engineering may require that the student validate his knowledge by passing an appropriate written and/or oral examination in the subject, or subjects, for which transfer credit is requested.

## **COUNSELING**

All freshmen, prior to registration in the University, must be counseled by the Dean of Engineering. Those attending the guidance and registration clinics in July and August will be counseled at that time. Students not attending one of these clinics, or students entering the University in the spring or summer semesters, must be counseled before they register. Appointments for such counseling may be made through the Office of the Dean of Engineering. At the time that the counseling takes place, the student must have a transcript of high school course work and a copy of SAT scores or other scores that have been used as a basis of admission. Freshman students should not go to the registration area prior to the preparation of a schedule of courses with the counselor.

All students other than beginning freshmen must receive counseling by their major departments before registration. The weeks beginning on the first Monday in November and April are designated



## ENGINEERING

as "Engineering Counseling Week." During Counseling Week, students are expected to meet with their assigned counselors in order to review their academic progress and to plan the next semester's work. Students who fail to receive counseling during Counseling Week will encounter delays in completing registration.

### ENTRY LEVEL

Students who enter engineering as freshmen will be placed at the appropriate level in mathematics, chemistry, and design graphics compatible with their high school background and basic capabilities. The first course in mathematics for which credit toward an engineering degree will be granted is MATH 1325 Analytical Geometry; in chemistry it is CHEM 1302 General Chemistry; in design graphics it is DG 1242 Introduction to Graphical Design.

Students will be placed in an entry level mathematics course based on their high school mathematics background and their score on the Level 1 Math Achievement Test of the College Entrance Examination Board Tests. Students placed in MATH 1326 Calculus I will have their degree requirements reduced by three hours. Students without an adequate high school background may be required to enter at MATH 1324 Algebra and Trigonometry, CHEM 1301 General Chemistry, and/or DG 1241 Basic Engineering Graphics, in which case their degree requirements would be increased by three or more hours.

All entering freshmen should contact the Department of Mathematics Department of Chemistry, Design Graphics, or the Dean of Engineering prior to registration to determine the entry level courses for which they are qualified.

### COOPERATIVE EDUCATION

The College of Engineering offers assistance in placing students in cooperative programs with various industries in the Dallas/Fort Worth area and elsewhere. Cooperative students gain practical experience in engineering during their college years, gain motivation for greater interest in their studies, and provide themselves with a means of financing a college education. Such students alternate between full-time study in college and full-time work periods in industry. Students may earn academic credit toward their degrees by participating in the Cooperative Education Program. Detailed information is available in the Office of the Dean of Engineering.

### PASS-FAIL PROGRAM

Students majoring in engineering may, with the permission of the chairman of the department involved, take any course on a pass-fail basis, provided that the course is not included in the student's degree program.

Students not majoring in engineering are invited, with permission of the chairman of the department involved, to take on a pass-fail basis any course offered in the College of Engineering for which the student is otherwise qualified. Forms for taking a course on a pass-fail basis are available in the Office of the Dean of Engineering.

### FRESHMAN CURRICULUM

The freshman year is identical for the curricula in aerospace engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering. The Computer Science & Engineering Department requirements are different, as described in its section of the catalog.

#### FRESHMAN YEAR

FIRST SEMESTER	Cr.	SECOND SEMESTER	Cr.
ENGL 1301 Freshman Composition	3	ENGL 1302 Freshman Composition	3
MATH 1325 Analytical Geometry	3	MATH 1326 Calculus I	3
PHY 1443 General Technical Physics	4	PHY 1444 General Technical Physics	4
DG 1242 Intro. to Graphical Design	2	DG 1243 Descriptive Geometry	2
HIST 1311 History of the United States	3	HIST 1312 History of the United States	3
GE 1101 General Engineering	1	Military Science or Physical Education	1
Military Science, Physical Education, or Marching Band	1		—
	—		16
	17		

# The Department of AEROSPACE ENGINEERING

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## REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN AEROSPACE ENGINEERING

### PRE-ENGINEERING COURSES

(All pre-engineering courses must be completed before enrolling in professional engineering courses.)

<b>English:</b>	1301, 1302.
<b>Mathematics:</b>	1325, 1326, 2325, 2326.
<b>Science:</b>	CHEM 1284, 1301, 1302, PHYS 1443, 1444.
<b>** Aerospace Eng.:</b>	2180, 2201, 2312, 2324.
<b>Elect. Eng.:</b>	2315.
<b>General Eng.:</b>	1101.
<b>Design Graphics:</b>	1242, 1243.
<b>Computer Science:</b>	2306.
<b>Humanistic-Social:</b>	Six hours from list below.

### HUMANISTIC-SOCIAL COURSES

<b>History:</b>	1311, 1312 or approved history substitute.
<b>Pol. Science:</b>	2311, 2312 or approved political science substitute.
<b>English:</b>	Three hours of literature (2000 or higher).
<b>* Electives:</b>	Three hours of approved humanistic-social courses (2000 or higher).

### PROFESSIONAL ENGINEERING COURSES

<b>Mathematics:</b>	3318.
<b>Aerospace Eng.:</b>	3180 (2 credits), 3301, 3305, 3311, 3312, 3406, 4180 (2 credits), 4302, 4303, 4309, 4313, 4321, 4331, 4348.
<b>** Elect. Eng.:</b>	2316, 3317.
<b>Mech. Eng.:</b>	3302, 3311.
<b>* Approved Electives:</b>	Three hours in science or math. Six hours in engineering, science, or mathematics.
<b>Humanistic-Social:</b>	12 hours from list above.
<b>Total (Prof. Eng. Prog.)</b>	77 hours.
<b>Total (Pre-Eng. Prog.)</b>	60 hours.
<b>Total (BSAE Degree):</b>	134-148 hours, depending on student's prior preparation, plus Physical Education or Military Science or Marching Band as required.

\* Students should have an approved degree plan listing all electives by name and number prior to registration for any elective. A list of acceptable humanistic-social electives and technical elective blocks is available in the departmental office.

\*\* Most aerospace engineering courses are offered only once a year, in the semester indicated in the semester-by-semester schedule on the following pages. Students are urged to plan their course sequence schedules carefully to avoid delaying their graduation.

\*\*\* ME 3322 and ME 3316 may be substituted for EE 2316 and EE 3317.

Depending upon the student's prior preparation, or scores on placement tests or advanced standing examinations, the student may be allowed to take fewer or required to take more courses in these areas. See sections concerning "placement" in College of Engineering section.

## **AEROSPACE ENGINEERING**

### **BACHELOR OF SCIENCE DEGREE IN AEROSPACE ENGINEERING**

Advances in aerospace technology have been so rapid in recent years that the successful aerospace engineer is one who has developed an ability to generate, analyze, and evaluate new concepts and convert them into reliable products which are environmentally acceptable to society. Since today's technology may be tomorrow's obsolescence, the student is given opportunities to practice and perfect a learning ability through the study of basic and engineering sciences in addition to the humanities. The areas of aerothermodynamics, flight mechanics, and structural mechanics are given equal stress in the curriculum which culminates in a student-initiated laboratory project and a vehicle design project. To increase versatility, a student may choose elective courses to develop strength in a secondary field of interest outside the major.

The faculty of the Graduate Program in Engineering Mechanics participate in the undergraduate aerospace engineering programs by organizing and teaching a strong sequence of undergraduate courses in fundamental mechanics and culminating in more specialized courses in aerospace structures, vibration, and intermediate dynamics. These courses will prepare one well for subsequent work in a broad area of structural analysis.

A program in Applied Aeronautics has been authorized but not implemented.

### **DEPARTMENTAL ADVISING**

Each currently enrolled aerospace engineering major should be advised and preregistered for the following semester by a departmental advisor during a period set aside each semester for this purpose. Consult the departmental bulletin board for advisors' names and the preregistration period. New students and transfer students should see the department chairman for advising prior to registration.

#### ***Suggested Course Sequence:***

This course sequence assumes that the student is qualified to start with PHYS 1443, CHEM 1302, MATH 1325 and DG 1242. Consult sections concerning "placement" in College of Engineering section of this catalog to determine proper placement.

#### **FRESHMAN YEAR**

**First Semester:** ENGL 1301; MATH 1325; DG 1242; DG 1243; PHYS 1443; GE 1101; Physical Education or Military Science or Marching Band — Total Credit 16 hours.

**Second Semester:** ENGL 1302; MATH 1326; PHYS 1444; CHEM 1301; CSE 2306; Physical Education or Military Science — Total Credit 17 hours.

#### **SOPHOMORE YEAR**

**First Semester:** CHEM 1302; CHEM 1284; MATH 2325; AE 2312; EE 2315; POLS 2311; Physical Education or Military Science or Marching Band — Total Credit 18 hours.

**Second Semester:** AE 2201; HIST 1311; MATH 2326; AE 2324; AE 2180; EE 2316; Physical Education or Military Science — Total Credit 16 hours.

#### **SUMMER TERM**

English Elective, 3 hours; ME 3311; MATH 3318 — Total Credit 9 hours.

#### **JUNIOR YEAR**

**First Semester:** AE 3301; EE 3317; ME 3302; AE 3180; AE 3311; HIST 1312 — Total Credit 16 hours.

**Second Semester:** AE 3406; AE 3305; AE 3180; AE 3312; POLS 2312; Approved Elective, 3 hours — Total Credit 17 hours.

#### **SENIOR YEAR**

**First Semester:** AE 4313; AE 4321; AE 4331; AE 4303; AE 4180; Approved Elective, 3 hours — Total Credit 16 hours.

**Second Semester:** AE 4348; AE 4180; AE 4309; AE 4302; Humanistic Elective, 3 hours; Approved Electives, 3 hours — Total Credit 16 hours.

## AEROSPACE ENGINEERING (AE)

Chairman: Professor Seath

Professors Dalley, Fairchild, Gaines, Payne

Associate Professors Stanovsky, Wilson

**2180. AEROSPACE ENGINEERING LABORATORY (0-3)** 1 hour credit — Experimental methods for studying fluid flow, engineering mechanics, and strength of materials. Corequisite: AE 2201.

**2201. INTRODUCTION TO AERONAUTICS AND ASTRONAUTICS (2-0)** 2 hours credit — The historical development of aerodynamic theory before and after the first successful powered flight and fundamental principles of astronautics and aeronautics. Basic concepts of fluid mechanics, statics, and similarity. Prerequisites: MATH 2325 and AE 2312 or concurrent enrollment.

**2312. MECHANICS I (3-0)** 3 hours credit — A study of forces and force systems, resultants and components of force systems, forces due to friction, conditions of equilibrium, forces acting on members of trusses and frame structures, centroids and moments of inertia. Index notation introduced. Prerequisites: PHYS 1443 and MATH 1326.

**2324. MECHANICS II (3-0)** 3 hours credit — The relation between forces acting on particles, systems of particles and rigid bodies and the change in motion produced including a review of kinematics and index notation and a study of Newton's Laws, energy methods, momentum methods, inertia tensor and Euler's equations of motion. Prerequisites: AE 2312 and MATH 2325.

**2351. INTRODUCTION TO APPLIED AERONAUTICS (2-3)** 3 hours credit — History and development of aeronautics, fundamentals of the atmosphere, fluids in motion, aerodynamics of wings and bodies at subsonic, transonic, and supersonic speeds, and applications to the principles of aircraft performance and maneuvers. Prerequisites: MATH 1325 and Professional Pilot I or permission of the instructor.

**2352. STRUCTURAL MECHANICS (3-0)** 3 hours — Fundamentals of engineering statics, dynamics and strength of materials with application to aircraft structures. Effects of maneuvers on aircraft structural integrity. Prerequisites: MATH 1326, PHYS 1443, and Professional Pilot I or permission of the instructor.

**3180. AEROSPACE ENGINEERING LABORATORY I AND II (0-3)** 1 hour credit — Laboratory I is an introduction to experimental methods for studying fluid flow phenomena and is designed to be taken concurrently with AE 3301. May be repeated for credit one time. The second enrollment, Laboratory II, is designed to evaluate the theories developed in the junior lecture courses in aerodynamics, flight dynamics, and structures and to develop physical understanding of the phenomena involved. Prerequisite: AE 3301 or concurrent enrollment.

**3301. FLUID DYNAMICS (3-0)** 3 hours credit — Fundamental concepts of fluid dynamics leading to the development of both the integral and differential formulation of the basic conservation equations. Application of the integral conservation equations to problems in fluid dynamics. Development and application of the one-dimensional flow theory for incompressible and compressible fluids. Prerequisites: AE 2324 or 3323, MATH 2326 or concurrent enrollment, and ME 3311 or concurrent enrollment.

**3305. DYNAMICS OF FLIGHT I (3-0)** 3 hours credit — The general equations of motion of an aerospace vehicle. Matrix-tensor transformations between the various axis systems. Operational techniques for analyzing vehicle dynamic stability and its response to control. Introduction to automatic feedback control system design. Prerequisites: AE 2324 or 3323 and EE 3317 or ME 3316.

**3307. OPERATIONAL AERODYNAMICS (3-0)** 3 hours credit — For non-aerospace engineering majors who are contemplating a career in the operational aspects of aviation. The influence of aerodynamic, structural, propulsion system, and control system design features on the operational characteristics of aircraft with a view of improving the safety, efficiency, economy, and community acceptability of aircraft operations. Prerequisite: junior standing.

**3311. SOLID MECHANICS (3-0)** 3 hours credit — The relationship between stresses and strains in elastic bodies and the tension, compression, shear, bending, torsion, and combined loadings which produce them. Deflections and elastic curves, shear and bending moment diagrams, and column theory. Prerequisite: AE 2312.

**3312. STRUCTURAL ANALYSIS I (3-0)** 3 hours credit — The analysis of stresses and strains at a point, Hooke's Law, combined stresses, bending of non-homogeneous beams, torsion of bars of arbitrary cross section, indeterminate structures, and Castigliano's theorems. Fatigue, fracture mechanics, creep, finite element methods, and experimental methods. Prerequisites: AE 3311 or CE 3311 and AE 2324 or 3323.

**3323. DYNAMICS (3-0)** 3 hours credit — The relation between forces acting on particles, systems of particles and rigid bodies and the changes in motion produced, including a review of kinematics and vector analysis and a study of Newton's Laws, energy methods, methods of momentum, inertia tensor and Euler's equations of motion. Prerequisites: CE 2311 or AE 2312 and MATH 2325.

**3349. POLLUTION OF THE ENVIRONMENT (2-3)** 3 hours credit — An introduction to the physics and politics of contaminants produced by increased living standards in technologically advanced human societies. Problem areas such as industrial, residential, and personal contributions to air, water, and landscape pollution by thermal, fluid, chemical, and mechanical means. Stu-

## AEROSPACE ENGINEERING

dent laboratory teams will investigate particulars of one or more problems including contact with area political and technological agencies and will formulate recommendations for solution. Also listed as CE 3349. Credit will be granted for one of the courses only. Prerequisite: junior standing or permission of instructor.

**3353. AIRCRAFT PROPULSION (3-0)** 3 hours credit — Fundamentals of propeller, jet, and rocket propulsion systems for aircraft. Effects of operating conditions and maneuvers on propulsive performance and efficiency. Prerequisite: AE 2351, MATH 2325, and Professional Pilot II or permission of the instructor.

**3354. AIRCRAFT PERFORMANCE (3-0)** 3 hours credit — Methods of estimating aircraft performance are developed. Aircraft range, endurance, climb/descent, maneuvering, landing, and take-off performance are considered. The influence of operational factors on performance is stressed. Prerequisites: AE 3353 and Professional Pilot II or permission of instructor.

**3406. AERODYNAMICS OF PERFECT FLUIDS (4-0)** 4 hours credit — Fundamental theory of perfect fluids in compressible and incompressible flows with applications to the prediction of aerodynamic characteristics of wings and bodies at subsonic and supersonic speeds. Prerequisites: MATH 2326 and AE 3301 or ME 3313 or CE 3305.

**4180. SENIOR AEROSPACE ENGINEERING LABORATORY AND SEMINAR (0-3)** 1 hour credit — An experimental or analytical project, originated and carried out by the student, on some aspect of aerospace engineering. Prerequisites: AE 3180 (two semesters) and senior standing. May be repeated for credit one time as senior seminar.

**4191, 4291, 4391. SPECIAL PROBLEMS IN AEROSPACE ENGINEERING (Variable credit from one to three hours, individual instruction)** — Special problems in aerospace engineering for students of senior standing.

**4192, 4292, 4392. ADVANCED DESIGN PROJECT (Variable credit from one to three hours, individual instruction)** — Designed to permit students to extend their work in the Flight Vehicle Optimum Design course (AE 4348) beyond the preliminary parametric design stage. Prerequisite: AE 4348.

**4302. ASTRONAUTICS (3-0)** 3 hours credit — An introduction to the solar system, the geometry and dynamics of two-body orbits, and the problems and approximations. Applications to propulsion and staging of powered trajectories, dynamics of satellites, and the design of lunar and interplanetary trajectories. Prerequisite: AE 2324 or 3323.

**4303. APPLIED AERODYNAMICS (3-0)** 3 hours credit — Application of basic aerodynamics and flight dynamics to the analysis of vehicle performance and static stability and control. Prerequisites: AE 4309, and 3305 or concurrent enrollment.

**4306. DYNAMICS OF FLIGHT II (3-0)** 3 hours credit — Continuation of AE 3305. Methods of determining the response of a flight vehicle to control inputs and atmospheric turbulence, methods of synthesis and analysis of flight vehicle stabilization and control systems, and the dynamics of spinning vehicles. Prerequisite: AE 3305.

**4308. VSTOL AERODYNAMICS (3-0)** 3 hours credit — The application of basic aerodynamics to predict the performance, stability, and control of VSTOL aircraft. Rotary and highlift wing aerodynamics. Direct thrust methods also considered. Prerequisite: AE 3406.

**4309. AERODYNAMICS OF REAL FLUIDS (2-3)** 3 hours credit — Fundamental concepts with application to aerospace, surface, and underwater vehicle design criteria as modified by the "real-world" behavior of fluids. Skin-friction and flow-separation effects. Laminar and turbulent boundary-layers in air, water, and other engineering fluids. Compressible and viscous heat-transfer effects. Jets, mixing layers, and wake flows. Prerequisite: AE 3301 or ME 3313 or CE 3305.

**4313. STRUCTURAL ANALYSIS II (3-0)** 3 hours credit — Structures peculiar to aerospace vehicles, including investigation of stiffened sheet metal panels, elastic and inelastic buckling, introduction to sandwich construction and composites, analysis of redundant frames and rings, bending and torsion and analysis of monocoque structures, shear lag, tension field beams, combined loadings, and fitting analysis. Prerequisite: AE 3312 or CE 4324.

**4314. MATRIX ANALYSIS OF STRUCTURES (3-0)** 3 hours credit — Basic structural principles and energy theorems, the finite element method, and the analysis of structures by use of the stiffness methods. Prerequisite: AE 3312 or CE 4324.

**4315. AERODYNAMICS III (3-0)** 3 hours credit — A continuation of Aerodynamics of Real Fluids. Aerodynamic problems associated with real gas effects at hypersonic velocities. Prerequisites: AE 4309 and ME 3302.

**4316. NOISE POLLUTION (3-0)** 3 hours credit — The principal sources of unwanted sounds, their propagation characteristics, and methods for reducing them. Prerequisites: MATH 3318 and senior standing.

**4317. HYDRONAUTICS (3-0)** 3 hours credit — Principles of hydrodynamics with applications to hydrofoil, underwater, and surface vehicles. Prerequisite: AE 3406, CE 3305, or ME 3313.

**4318. INTRODUCTION TO TURBULENCE (3-0)** 3 hours credit — The intuitive approach used to understand classical methods for solution of flow transition, separation, and turbulence problems. Modern analytic and semi-empiric approaches to prediction and experimental correlation developed. Emphasis on developing the student's intuition and understanding of natural flows in biology,



pollution, and aerospace fields. Prerequisite: AE 4349 or 4309 or CE 4242 or 4349 or ME 4314 or other advanced course in fluid mechanics or permission of instructor.

**4321. AIR-BREATHING ENGINE PROPULSION** (3-0) 3 hours credit — First course of a two-semester sequence for students interested in aerospace propulsion. Ramjets, turbojets, and other air-breathing engines and their components. Prerequisites: ME 3302, 3312, 3313, 4313 or AR 3406 and MATH 3318. May be taken as ME 4321, but credit will be granted only once.

**4322. ROCKET PROPULSION** (3-0) 3 hours credit — Chemical, electrical, and nuclear rockets. Prerequisite: ME 4321 or AE 4321. May be taken as ME 4322, but credit will be granted only once.

**4328. FLIGHT TEST ENGINEERING** (3-0) 3 hours credit — Methods of determining aircraft performance by flight test techniques. Engineering flight tests are planned, executed, and evaluated. Prerequisite: AE 4303.

**4329. EXPERIMENTAL METHODS IN AEROSPACE ENGINEERING** (3-0) 3 hours credit — Methods of obtaining accurate experimental data, its correction, analysis, and evaluation. The requirements, limitations, and advantages of various types of experimental facilities and data acquisition systems.

**4330. STABILITY AND CONTROL FLIGHT TEST ENGINEERING** (3-0) 3 hours credit — Methods of determining aircraft stability and control characteristics by flight test techniques. Engineering flight tests are planned, executed, and evaluated. Prerequisite: AE 4328.

**4331. MECHANICAL VIBRATIONS** (3-0) 3 hours credit — Harmonic and periodic motion including both damped and undamped free and forced vibration. Single and multi-degree of freedom systems. Methods of solution including the Holzer and Rayleigh methods. Matrix techniques suitable for digital computer solution. Prerequisites: MATH 3318 and AE 3323 or 2324. May be taken as ME 4314, but credit will be granted only once.

**4336. INTERMEDIATE DYNAMICS** (3-0) 3 hours credit — The fundamental principles of mechanics, with applications to motion in resisting medium, variable mass problems, mechanical vibrations, and impact. The formulation and use of the Lagrange equations of motion. Prerequisites: AE 2324 or 3323 and MATH 3318.

**4339. INTRODUCTION TO FRACTURE ANALYSIS** (3-0) 3 hours credit — Techniques for improving structural designs by the analysis of fractures. Because of the predominance of structural failures due to fatigue and environmental conditions, methods of fatigue and creep analysis and prediction of service life are studied. Prerequisites: AE 3311 or CE 3311 and ME 2321.

**4340. AERODYNAMICS OF WIND ENERGY CONVERSION SYSTEMS** (3-0) 3 hours credit — The role of aerodynamics in wind power, including cross-wind-axis machines, wind-axis machines, translating wind power machines, and the forces and moments due to vertical wind gradients. Prerequisite: undergraduate course in fluid mechanics or equivalent.

**4348. FLIGHT VEHICLE OPTIMUM DESIGN** (2-3) 3 hours credit — Preliminary design techniques for optimizing design to a particular set of performance, stability, and control specifications and the influence of important design parameters on mission performance. Prerequisite: AE 4303.

**4349. POLLUTION OF THE ATMOSPHERE AND OCEAN** (2-3) 3 hours credit — A specialized continuation of AE 3349 with emphasis on transport of thermal and chemical pollutants of fluids, resulting from elevated living standards. Problem areas, e.g., "smog," "killer fogs," marine and wildlife degradation due to chemical and thermal imbalances induced by human societies. Lab teams will study in depth one or more specific areas and report recommendations. Also listed as CE 4349. Credit will be granted only once. Prerequisites: senior standing and AE 3349 or permission of instructor.

**4355. AIRCRAFT STABILITY AND CONTROL** (3-0) 3 hours credit — The influence of the aircraft configuration (i.e., wing shape, tail location, C.G. location) on the static and dynamic stability and control of an aircraft is studied. The importance of operational techniques and limitations caused by stability and control characteristics is stressed. Prerequisite: AE 3354 and Professional Pilot III or permission of instructor.

**4356. AVIATION SAFETY** (3-0) 3 hours credit — Problems resulting from the interface between man and machine which affect the safety of flight operations are studied. Included are engineering design, manufacturing, maintenance, operational procedures, training, human factors, and supervision. Accident investigation techniques and accident prevention programs and their proper use are discussed. Prerequisites: AE 4355 and Professional Pilot III or permission of the instructor.

**4358. EXPERIMENTAL MECHANICS** (2-3) 3 hours credit — The study and use of mechanical and optical gauges, brittle coatings, electrical strain gauges and associated instrumentation; structural modeling, photoelastic and Moire techniques, holography, motion measurement. Prerequisite: AE 3312 or CE 4324.

# The Department of CIVIL ENGINEERING

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## REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN CIVIL ENGINEERING

### PRE-ENGINEERING PROGRAM

<b>English:</b>	1301, 1302.
<b>*Mathematics:</b>	1325, 1326, 2325, 2326.
<b>Computer Science:</b>	2306.
<b>*Design Graphics:</b>	1242, 1243.
<b>Physics:</b>	1443, 1444.
<b>*Chemistry:</b>	1302, 1284.
<b>General Eng:</b>	1101.
<b>Civil Eng:</b>	2190, 2242, 2311, 2341, 3311.
<b>Humanistic-Social:</b>	Any nine semester hours from the list below.

### HUMANISTIC-SOCIAL COURSES

<b>English:</b>	Three hours of 2000 level or higher literature courses. (May include foreign literature).
<b>Political Science:</b>	2311, 2312 or approved political science courses.
<b>History:</b>	1311, 1312, or approved history courses.
<b>Hum.-Soc.</b>	
<b>Electives:</b>	Six hours of approved courses, 2000 level or higher.

### PROFESSIONAL ENGINEERING PROGRAM

<b>Mathematics:</b>	3318.
<b>Natural Science</b>	Three hours of approved 2000 level or higher course.
<b>Elective:</b>	
<b>Industrial Eng:</b>	3301 or MATH 3310 or 3330 or 4322.
<b>Aerospace Eng:</b>	3323 (or 2324).
<b>Electrical Eng:</b>	2315.
<b>Mechanical Eng:</b>	3311.
<b>Eng. Sci. Elective:</b>	Three semester hours of approved theory course in engineering or computer science engineering.
<b>Civil Eng:</b>	3142, 3181, 3183, 3184, 3201, 3209, 3252, 3305, 3314, 3443, 3444, 4183, 4201, 4302, 4347, 4348, and nine hours of senior technical electives in civil engineering.

<b>Total Pre-Eng. Program:</b>	60-71 hours (including nine hours Humanistic-Social courses and ENGL 1301, 1302).
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<b>Total Humanistic Social courses:</b>	21 hours (not including ENGL 1301, 1302).
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<b>Total Prof. Eng. Program:</b>	78 hours (including 12 hours Humanistic-Social Courses).
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<b>Total (BSCE Degree):</b>	138-149 hours plus physical education or military science or marching band as required.
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**DEPARTMENTAL POLICY**

Each currently enrolled civil engineering major is required to be advised by a departmental advisor during the period set aside each semester for this purpose. Consult the departmental bulletin board for advisor's names and the advising period. The approved counseling form must be presented by the student at registration. New students and transfer students shall go to the departmental office for advising prior to registration.

Students shall have an approved degree plan listing all electives by name and number prior to the semester the student plans to graduate. A list of acceptable humanistic-social, technical, engineering science, and natural science electives is available in the departmental office.

For admission and student transfer requirements, see appropriate paragraphs in the College of Engineering section.

**Suggested Course Sequence (PRE-ENGINEERING PROGRAM):**

See admission requirements in the College of Engineering section.

**FRESHMAN YEAR**

**First Semester:** ENGL 1301; MATH 1325; DG 1242; CHEM 1302, 1284; GE 1101; Physical Education or Military Science or Marching Band — Total Credit 15 hours.

**Second Semester:** ENGL 1302; MATH 1326; DG 1243; PHYS 1443; CSE 2306; Physical Education or Military Science — Total Credit 16 hours.

**SOPHOMORE YEAR**

**First Semester:** \*ENGL (a 2000 literature course); MATH 2325; CE 2311; CE 2341; PHYS 1444; Physical Education or Military Science or Marching Band — Total Credit 17 or 18 hours.

**Second Semester:** CE 2190; \*POLS 2311; MATH 2326; CE 3311; CE 2242; AE 3323; Physical Education or Military Science — Total Credit 16 or 17 hours.

**Suggested Course Sequence (PROFESSIONAL ENGINEERING PROGRAM):**

See admission requirements in the College of Engineering section.

**SUMMER TERM**

\*POLS 2312; \*HIST 1311; CE 3305; \*HIST 1312 — Total Credit 12 hours.

**JUNIOR YEAR**

**First Semester:** Natural Science Elective; CE 3142; MATH 3318; CE 3209; CE 3252; CE 3181; \*Humanistic-Social Elective; CE 3183 — Total Credit 16 hours.

**Second Semester:** CE 3201; CE 3184; CE 3314; CE 3443; CE 3444; Elective, 3 hours (from IE 3301, MATH 3310, MATH 3330, and MATH 4322) — Total Credit 17 hours.

**SENIOR YEAR**

**First Semester:** CE 4201; CE 4302; CE 4347; Engineering Science Elective, 3 hours; \*Humanistic-Social Elective, 3 hours (2000 level or higher); Technical Elective, 3 hours — Total Credit 17 hours.

**Second Semester:** CE 4183; CE 4348; EE 2315; ME 3311; Technical Electives, 6 hours — Total Credit 16 hours.

**\*POLS 2311, 2312, English Literature (2000 or above), HIST 1311, 1312, or approved humanistic-social electives are interchangeable in the above sequences.**

Upon completion of the program outlined above, the graduated student begins a four-year internship as an Engineer-in-Training. When the internship period has been satisfactorily completed, the candidate is eligible to apply for registration as a professional engineer. Satisfactory performance in a graduate program in civil engineering may be counted for a portion of the internship period.

**ELECTIVE BLOCKS FOR CIVIL ENGINEERING MAJORS****Science Elective:**

Approved science elective, 3 semester hours (2000 level or higher).

**Engineering Science Electives:**

AE 4336, 4358; CE 4324; EE 2316, 3442; IE 3315; ME 2321, 3312, 4313; CSE 4301; biomedical engineering courses approved by department chairman.

**Technical Electives:**

CE 4308, 4310, 4312, 4313, 4315, 4318, 4321, 4322, 4327, 4328, 4329, 4332, 4350, 4351, 4360; approved biomedical engineering courses.

## **CIVIL ENGINEERING**

### **CIVIL ENGINEERING (CE)**

*Chairman: Professor Parker*

*Professors Everard, Haynes, Huang, Nedderman, Poor, Qasim, Yuan*

*Associate Professors Armstrong, J. Matthys, Petry, Spindler*

*Assistant Professors Clark, Corley, Crosby, Rivero*

*Senior Lecturer Argento*

*Assistant Instructors R. Matthys, Mojekwu*

The aim of the Department of Civil Engineering is to provide a broad educational background so that the student will be prepared to play an active role in society as a professional engineer. The curriculum is designed to provide a basic understanding of all areas of civil engineering practice. Some specialization is provided in the senior year.

**2190. CIVIL ENGINEERING SEMINAR (0-3)** 1 hour credit — Introduction to the professional practice of civil engineering and the specialties included in the civil engineering Professional Program. Field trips to construction sites and other civil engineering-oriented facilities. Instruction in the preparation of laboratory reports and vocational guidance related to the student's interests.

**2242. ENGINEERING SURVEYING (1-3)** 2 hours credit — Application of polynomial curves and polar equations to the vertical and horizontal alignment of route systems and an introduction to geometric design of transportation routes. Special topics including astronomical observations, geodetic control systems, and electronic computer applications. Prerequisite: CE 2341. **\$2 lab fee.**

**2311. STATICS (3-0)** 3 hours credit — Forces and force systems, resultants and components of force systems, forces due to friction, condition of equilibrium, forces acting on members of trusses and frame structures, centroids and moments of inertia. Prerequisites: PHYS 1347 or 1443; MATH 1326; DG 1242 (or equivalent ability)

**2341. PLANE SURVEYING METHODS (2-3)** 3 hours credit — Principles and theories of physical measurements of spatial quantities, theory of errors and error adjustment techniques, the use of modern instruments and measurement systems. Vertical and horizontal control measurements and an introduction to land surveying law. Prerequisite: MATH 1325 or registration therein. **\$2 lab fee.**

**3142. APPLIED FLUID MECHANICS LAB (0-3)** 1 hour credit — Fluid flow measurements studied by means of performed laboratory experiments and/or digital computer programming of relevant equations. Prerequisite: CE 3305. **\$2 lab fee.**

**3181. ENGINEERING MATERIALS LABORATORY I (0-3)** 1 hour credit — Selected principles of mechanics of solids demonstrated. Various properties of certain engineering materials. Materials considered include steel, cast iron, concrete, wood, aluminum, plastics and composites. Measurement methods and testing techniques. Prerequisite: CE 3311 or registration therein and CHEM 1302 and 1284. **\$2 lab fee.**

**3183. ENGINEERING MATERIALS LABORATORY II (0-3)** 1 hour credit — Physical and chemical properties of Portland cement concrete. Influence of the quality of the components upon the hardened concrete and the influence of proportions, mixing and curing. Prerequisites: CE 3311 or registration therein and CHEM 1302 and 1284. **\$2 lab fee.**

**3184. ENGINEERING MATERIALS LABORATORY III (0-3)** 1 hour credit — Physical properties of bituminous materials (asphalt and tar) and the influence of chemical properties and the refinement method on these physical properties. Identification methods utilized in quality control of statistical methods of acceptance sampling. An introduction to bituminous concrete mix design methods, along with current bituminous concrete testing methods. Prerequisites: CE 3311 or registration therein and CHEM 1302 and 1284. **\$2 lab fee.**

**3201. ENGINEERING CONSTRUCTION AND ECONOMY (2-0)** 2 hours credit — Plant and equipment selection for various types of civil engineering projects; construction schedules, progress reports, and performance records; analysis of operating costs, including interest, depreciation, fixed costs, and overhead; and comparison of first cost economy versus ultimate economy. Prerequisite: junior classification in engineering.

**3209. HYDROLOGY (2-0)** 2 hours credit — Elements of meteorology, precipitation, streamflow, evapotranspiration, groundwater, surface runoff, surface and groundwater supply. Prerequisite: junior standing and CE 3305.

**3252. WATER QUALITY MEASUREMENT AND POLLUTION CONTROL (1-3)** 2 hours credit — Introduction to the basic principles of chemistry and microbiology used in the examination of water, sewage, and industrial wastes and in the control of sanitary engineering processes. Sources and types of pollutants, their control, and water quality standards. Prerequisites: CHEM 1302 and junior classification. **\$2 lab fee.**

**3281. ENGINEERING MATERIALS (1-3)** 2 hours credit — The study of engineering materials, their manufacture and use in relation to structures. Prerequisite: CE 3311. **\$2 lab fee.**

**3305. BASIC FLUID MECHANICS (3-0)** 3 hours credit — Fundamentals of fluid statics, kinematics of fluid flow, fluid energy, fluid forces, similitude, and dimensional analysis. Related to steady flow of incompressible fluids in confined and free surface systems. Prerequisites: CE 3311, AE 3323. (AE 3323 may be concurrent.)

**3311. MECHANICS OF MATERIALS I** (3-0) 3 hours credit — The relationship between stresses and strains in elastic bodies and the tension, compression, shear, bending, torsion, and combined loadings which produce them. Science and Engineering, diagrams, and column theory. Prerequisite: CE 2311.

**3314. WATER SUPPLY AND WASTE TREATMENT** (3-0) 3 hours credit — Fundamental scientific techniques and procedures used in planning water supplies and wastewater collection, treatment and disposal, and water quality management systems. Formerly CE 3313; credit will not be granted for both. Prerequisites: CE 3209, 3252, and 3305.

**3331. METEOROLOGY AND CLIMATOLOGY** (3-0) 3 hours credit — Fundamentals of modern meteorology and the characteristics and distribution of world climates. Physical elements which cause and influence the weather, forecasting, meteorological instruments, weather data and charts, factors controlling the climate, climatic cycles, the world's climatic regions, and weather modification. The effect of weather and climate on man and his activities. Prerequisites: PHYS 1342, MATH 1314 or 1303, or junior standing and consent of the instructor.

**3443. SOIL MECHANICS** (3-3) 4 hours credit — An introduction to the determination of significant geophysical and soil science properties and behavior of materials making up the earth's crust as they apply to civil engineering. Identification, classification, plasticity, permeability, stresses and forces and stress distribution, shear strength, consolidation, and settlement. Also an introduction to basic foundation engineering concepts. (Formerly CE 3343; credit will be given only once.) Prerequisite: CE 3311, and 3181. **\$2 lab fee.**

**3444. STRUCTURAL ANALYSIS** (3-3) 4 hours credit — Analysis of statically determinate structures including trusses, beams, frames, and three-hinged arches. Influence lines and moving loads. Statically indeterminate structures introduced through the methods of consistent deformation, slope deflection, and moment distribution. Prerequisite: CE 3311.

**4183. CIVIL ENGINEERING SEMINAR** (0-3) 1 hour credit — A study of the ethics of job procurement, responsibilities and obligations of civil engineers, professional ethics, membership in professional societies, and professional registration. A brief introduction to critical path scheduling and linear programming as well as field trips and lectures by staff and practicing engineers. Prerequisite: senior classification in civil engineering.

**4191, 4291, 4391. ADVANCED PROBLEMS IN CIVIL ENGINEERING** (Variable credit from 1 to 3 semester hours as arranged, individual instruction) — Selected problems in civil engineering on an individual or group basis. Reference material is assigned and progress conferences are held frequently, by arrangement, with a faculty supervisor. Prerequisites: permission of the chairman of the department and senior classification in civil engineering.

**4201. ENGINEERING CONTRACTS AND SPECIFICATIONS** (2-0) 2 hours credit — Basic principles of the law of contracts, the application of contract principles to construction contracts and to contracts for professional services. The fundamentals of specification writing as applied to construction contracts. Consideration given to miscellaneous fields of law which are of special interest to engineers, and to standards of ethical practice. Prerequisite: senior classification in engineering.

**4300. SELECTED TOPICS IN CIVIL ENGINEERING** (3-0) 3 hours credit — Topics of current interest in any one of the various fields of civil engineering. The subject title to be listed in the class schedule. May be repeated for credit when the topic changes.

**4302. TRANSPORTATION ENGINEERING** (3-0) 3 hours credit — Introduction to design methods for the physical components of transportation facilities, including highways, airports, railroads, waterways, and pipelines. Principles of design for roadbed, pavement and track structures, geometric design, and drainage systems. The design of waterways, locks, and ports, and some aspects of traffic engineering, economics, and planning. Prerequisites: CE 2242, 3183, 3184, 3305 and 3142, and 3443.

**4308. ADVANCED STRUCTURAL ANALYSIS** (3-0) 3 hours credit — Classical methods, matrix methods, and numerical methods for structural analysis. Problems are solved by hand calculation and by using computer programs. Analysis of frames, trusses, arches, and grids. Prerequisites: CSE 1201 and CE 3444.

**4310. ANALYSIS OF STATICALLY INDETERMINATE STRUCTURES** (3-0) 3 hours credit — Analysis of statically indeterminate linearly elastic structures. Methods to compute deflections, including energy methods, double integration, moment area, and conjugate beam. Analysis of statically indeterminate beams, trusses, frames, and arches. Methods of analysis are consistent deformation, three-moment equation, column analogy, slope deflection, and moment distribution (including side sway effects). Maxwell's law of reciprocal displacement and influence lines. Prerequisite: CE 3444.

**4312. STREET AND HIGHWAY DESIGN** (3-0) 3 hours credit — The planning and geometric design concepts necessary for city streets and highways. The customary surveys and plan preparations along with a review of drainage practices, right-of-way considerations, and road construction materials. Design and construction methods for both flexible and rigid pavements. Prerequisite: CE 4302 or registration therein.

**4313. TRAFFIC ENGINEERING** (3-0) 3 hours credit — Traffic surveys and parking studies. Vehicle characteristics, traffic flow, traffic control of intersections and interchanges, traffic speed, volume, and density relationships. Prerequisite: CE 4302 or registration therein.

## **CIVIL ENGINEERING**

- 4315. ENVIRONMENTAL HEALTH ENGINEERING** (3-0) 3 hours credit — Public health aspects of environmental sanitation. Sources and vectors of infection, epidemiology, toxicology, waste disposal, industrial hygiene, and air and noise pollution. Prerequisite: senior standing in engineering.
- 4318. CITY PLANNING** (3-0) 3 hours credit — The development of cities, forms of municipal government, functions of the city manager, urban land-use planning, city finance, public services and utilities, public health and welfare, and housing. The procedures utilized in the formulation and execution of master plans. Prerequisite: senior standing.
- 4321. FOUNDATION ENGINEERING** (3-0) 3 hours credit — Several aspects of foundation, including slopes and embankments, interaction between soils and structures, bearing capacity theories, consolidation, and settlement and seepage problems. In addition, numerical analysis techniques are applied to some of these problems. Prerequisites: CE 3443 and 3444.
- 4322. SOIL STABILIZATION** (3-0) 3 hours credit — Techniques and procedures used to improve rheological properties of foundation materials. Physical, mechanical, and chemical processes. Prerequisite: CE 3443.
- 4324. MECHANICS OF MATERIALS II** (3-0) 3 hours credit — A continuation of CE 3311. Analysis of stresses due to various loading conditions, stresses, and strains at a point, stress-strain relationships, theories of failure, energy methods, shear center, unsymmetrical bending, curved beams, torsion, and buckling problems. Prerequisite: CE 3311.
- 4327. WATER RESOURCES: ENGINEERING HYDROLOGY** (3-0) 3 hours credit — Hydrographs of runoff, streamflow routing, frequency and duration studies, and sedimentation theories; application to solution of problems encountered in the provision of water supplies and control of flood flows. Prerequisites: CE 3209, MATH 3313 or IE 3301, and registration or credit in CE 3305 and 3142.
- 4328. WATER RESOURCES: CONVEYANCE SYSTEMS** (3-0) 3 hours credit — Further theories for solution of complex closed conduit and open channel flow problems and optimization techniques. Analysis and design of water conveyance systems, open and closed aqueducts, grade and pressure tunnels, pipe syphon, and pumping facilities. Prerequisite: CE 3305.
- 4332. CONSTRUCTION METHODS AND MANAGEMENT** (3-0) 3 hours credit — Introduction to the methods, equipment, and management techniques used by the construction industry. Building and highway heavy construction methods, equipment operating characteristics, safety, and the management of construction operations. Prerequisite: senior classification.
- 4347. REINFORCED CONCRETE DESIGN** (2-3) 3 hours credit — An analysis, design-synthesis course for concrete structures, emphasizing elastic analysis and ultimate strength design. Topics include frame analysis, design of beams, slabs, columns, foundations, and retaining walls. Flexure, flexure and axial load, shear, torsion, deflection, and serviceability. Plain and reinforced concrete. Building codes and recommended practice documents. Prerequisite: CE 3444.
- 4348. STRUCTURAL DESIGN IN METALS** (2-3) 3 hours credit — A design synthesis course for metal structures emphasizing elastic methods. Topics include tension members, compression members, flexural members, beam columns, and their connections. The concept of plastic behavior. Building codes and related documents. Prerequisite: CE 3444.
- 4350. AIR POLLUTION CONTROL ENGINEERING** (3-0) 3 hours credit — Fundamentals of air pollution control technology; impact of federal and state legislation on the construction, modification, and control of industrial plants is reviewed. Air pollutants, their sources and health effects, and air quality standards. Hazardous air pollutants, modifications to ambient air quality due to meteorological conditions, and basic air pollution dispersion modeling. Prerequisite: CE 3314.
- 4351. SANITARY ENGINEERING DESIGN** (2-3) 3 hours credit — Design of community wastewater collection and water distribution systems, and water and wastewater treatment units. Laboratory sessions concerning the design and construction of such facilities. Prerequisite: CE 3314.
- 4360. ELEMENTS OF PHOTOGRAMMETRY** (2-3) 3 hours credit — Photogrammetry optics and characteristics of aerial cameras as an introduction to characteristics of aerial photographs, map projections, radial plot mosaics, and mapping from oblique photographs. Ground control methods as well as interpretation of aerial photographs. Emphasis on the use of stereoscopic plotting, instruments and associated data processing units. Prerequisites: CE 2242, CSE 1201, and senior standing.

# The Department of COMPUTER SCIENCE and ENGINEERING

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## REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN COMPUTER SCIENCE AND ENGINEERING

- English:** 1301, 1302, and three hours of literature (2000 or higher).
- Political Science:** 2311, 2312.
- History:** 1311, 1312.
- \*Mathematics:** 1325, 1326, 2325, 2326, 3318.
- Science:** PHYS 1443, 1444, 3313. #Three hours of approved science elective (2000 or higher).
- #Electives:** Six hours of approved humanistic-social courses (2000 or higher).
- Aero. Eng.:** 2312, 2324.
- Elect. Eng.:** 2315, 2316, 3317, 3303.
- General Eng.:** 1101.
- Indus. Eng.:** 3301, 3312, 3315.
- Computer Science:** 2304, 2308, 3302, 3306, 3345, 3346, 3441, 4301, 4303, 4304, 4305, 4312, 4322, 4441.
- #Technical Electives:** Nine hours of approved computer science and/or engineering design courses.
- Total:** 137 hours plus physical education, military science, or marching band as required.
- \*Students may be allowed to take fewer or required to take more courses in this subject area as is appropriate for their prior preparation and scores on placement tests. (See descriptions of courses in appropriate sections of catalog and the College of Engineering requirements.)**
- #Students should have an approved degree plan listing all electives by name and number prior to registration for any elective.**

During each long semester, the Computer Science and Engineering section conducts a pre-enrollment counseling week. Each student shall meet with the faculty advisor assigned to the student during the counseling week to complete an Enrollment Approval Form. This form is required for registration in courses at enrollment. Transfer students or students who need counseling at times other than the designated week should inquire at the Computer Science and Engineering office, Room 706, Carlisle Hall. See section concerning "Required Counseling" in College of Engineering section of this catalog.

### **Suggested Course Sequence:**

#### **FRESHMAN YEAR**

**First Semester:** GE 1101; MATH 1325; MATH 1326; PHYS 1443; HIST 1311; ENGL 1301; Physical Education or Military Science or Marching Band — Total Credit 18 hours.

**Second Semester:** CSE 2304; MATH 2325; PHYS 1444; HIST 1312; ENGL 1302; Physical Education or Military Science — Total Credit 17 hours.

#### **SOPHOMORE YEAR**

**First Semester:** CSE 2308; MATH 2326; EE 2315; English (literature); POLS 2311; Humanistic/Social elective, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 19 hours.

**Second Semester:** CSE 3302; MATH 3318; IE 3301; IE 3315; POLS 2312; Physical Education or Military Science—Total Credit 16 hours.

## COMPUTER SCIENCE AND ENGINEERING

### SUMMER TERM

CSE 3306; CSE 3345; EE 2316 — Total Credit 9 hours.

### JUNIOR YEAR

**First Semester:** CSE 3346; AE 2312; EE 3317; PHYS 3313; Humanistic/Social Elective, 3 hours — Total Credit 15 hours.

**Second Semester:** CSE 3441; CSE 4301; CSE 4312; AE 2324; EE 3303 — Total Credit 16 hours.

### SENIOR YEAR

**First Semester:** CSE 4304; CSE 4322; CSE 4441; Technical Elective, 3 hours; Science Elective, 3 hours — Total Credit 16 hours.

**Second Semester:** CSE 4303; CSE 4305; IE 3312; Technical Electives 6 hours — Total Credit 15 hours.

## COMPUTER SCIENCE AND ENGINEERING (CSE)

*Chairman: Professor Carroll*

*Professors Hsia, Walker*

*Associate Professors Classen, Elizandro, Hemphill, Pierce, Rinewalt, Sparr, Underwood, Ward*

*Assistant Professors Buckles, Kavi, Peterson, Starks*

*Visiting Assistant Professors Kamangar, Oliver*

*Assistant Instructor Moss*

The computer science and engineering curriculum is based on foundation courses in mathematics, science, and engineering science, followed by core courses in both computer hardware and software. The curriculum and program of study at UTA are designed to give students an opportunity to acquire an in-depth understanding of computer systems and the principles underlying their construction and implementation. The course work provides an in-depth treatment of computer software and hardware engineering, compiler design, systems programming, operating systems, computer architecture, microcomputers, and database systems.

**2301. COMPUTER LITERACY (3-0) 3 hours credit** — For those persons having an interest in computers, computer programming, and simple algorithmic processes. Discussion includes what a computer is (and is not), types of problems suited for it, and how to utilize a computer to solve simple problems. Data representation, organization and characteristics of computers, survey of computers, and survey of available computer languages. Prerequisite: sophomore standing.

**2304. INTRODUCTION TO COMPUTER SCIENCE AND ENGINEERING (3-0) 3 hours credit** — An introduction to computing techniques using the PASCAL language. Emphasis will be on problem analysis and structured program design and development. Credit will be given for only one of CSE 2302, 2306, and 2304.

**2306. COMPUTER PROGRAMMING AND APPLICATIONS (3-0) 3 hours credit** — An introduction to computing techniques utilizing the FORTRAN language. Emphasis will be on algorithm design for the solution of engineering and scientific problems. Prerequisite: high school trigonometry.

**2307. SOFTWARE ENGINEERING (3-0) 3 hours credit** — A study of program development and programming techniques using PL/1. Structured programming is emphasized. Topics include list processing, string processing, and file manipulation. Prerequisite: CSE 2302 or 2306.

**2308. ASSEMBLY LANGUAGE PROGRAMMING (3-0) 3 hours credit** — An introduction to assembly language programming. Data types, instruction sets, and assembler features. Several programs to investigate important techniques will be implemented using assembly language. Prerequisite: CSE 2302 or 2304 or 2306 or BUSA 2303.

**3301. COBOL PROGRAMMING (3-0) 3 hours credit** — A thorough coverage of the COBOL language and some of its variations. Emphasis on the language, its flexibility and power rather than on applications. Prerequisite: CSE 2302 or 2306 or BUSA 2303.

**3302. SURVEY OF ALGORITHMIC LANGUAGES (3-0) 3 hours credit** — The various types of algorithmic languages and problem solutions utilizing them. Included are languages for scientific purposes, string processing, general purpose, and others. Prerequisites: CSE 2304 and 2308.

**3306. INFORMATION STRUCTURES (3-0) 3 hours credit** — Information representations and relationships between the forms of representation and processing techniques. The generation, development, and processing of structures such as lists and trees are developed to illustrate interrelationships of data structures. Prerequisites: CSE 2304 and 2308, and MATH 1326.

**3345. DISCRETE STRUCTURES FOR COMPUTER SCIENCE (3-0) 3 hours credit** — The study of discrete processes as applied toward computer algorithm design. Topics will include set theory, group theory, logic, graph theory, algorithm design, and automata theory. Prerequisites: junior standing, CSE 2304 or 2307.

**3346. SYSTEMS PROGRAMMING (3-0) 3 hours credit** — Program-linking conventions; design of assemblers, macro-processors, linkers and loaders, and text editors; interrupt processing, physi-



cal I/O; and data management terminology and concepts. Prerequisite: CSE 3306 or concurrent enrollment.

**3348. COMPUTER APPLICATIONS FOR NON-ENGINEERS (2-3) 3 hours credit** — An introduction to microcomputers and personal computers for the solution of non-engineering problems. Prerequisite: Programming skill in BASIC, FORTRAN, PASCAL, or PL/1.

**3441. COMPUTER ORGANIZATION (3-3) 4 hours credit** — The basic system components of digital computers. Topics include Boolean algebra, combinational logic, sequential machines, control functions, digital storage and input/output facilities. Prerequisite: CSE 3341.

**4191, 4291, 4391. INDIVIDUAL PROJECTS (Variable credit from 1 to 3 semester hours as arranged, individual instruction)** — The investigation of special problems in computer science on an individual basis. Topic may change from semester to semester. May be repeated for credit. Prerequisite: consent of the instructor or chairman of department.

**4193, 4293, 4393. SPECIAL TOPICS IN COMPUTER SCIENCE AND ENGINEERING (Variable credit from 1 to 3 semester hours as arranged)** — An organized course dealing with special problems in computer science. Topic may change from semester to semester. May be repeated for credit. Prerequisite: consent of the instructor or chairman of department.

**4301. ANALYSIS AND COMPUTATION METHODS FOR ENGINEERS AND SCIENTISTS (3-0) 3 hours credit** — Designed to give the engineer or scientist the computer methods necessary for the solution of a wide variety of practical applications, including simultaneous equation solutions applied to various engineering and scientific areas, integration methods, root finding, derivatives and differential equations, solutions of linear systems of differential equations, series approximations, and error analysis. Credit will not be given for both CSE 4301 and MATH 3345. Prerequisites: MATH 3318 and CSE 2304 or 2306, or consent of instructor.

**4303. COMPUTER GRAPHICS (3-0) 3 hours credit** — Input/output devices and programming techniques suitable for the visual representation of data and images. Prerequisites: CSE 3306 and 3345, and DG 1241 or equivalent.

**4304. OPERATING SYSTEMS (3-0) 3 hours credit** — Structure of operating systems, concurrent processes, memory, processor, device, and information management. Prerequisite: CSE 3346.

**4305. COMPILERS FOR ALGORITHMIC LANGUAGES (3-0) 3 hours credit** — Formal description of algorithmic languages and the techniques used in writing compilers for such (e.g., Backus normal form). A study of syntax, semantics, ambiguities, procedures, iteration, and recursion in these languages. Includes the definition and writing of compilers for simple languages. Prerequisites: CSE 3302, 3306, and 3345.

**4307. SIMULATION TECHNIQUES (3-0) 3 hours credit** — Basic programming techniques and background for computer simulation and Monte Carlo modeling. Also included is a survey of the various simulation programming languages. Prerequisites: CSE 2304 or 2306, IE 3301.

**4308. LIST PROCESSING (3-0) 3 hours credit** — Languages designed for list processing, e.g., SNOBOL 4, LISP. Design techniques, related to list processing systems and applications. Prerequisites: CSE 3306 and 4302.

**4310. ADVANCED METHODS IN SOFTWARE ENGINEERING (3-0) 3 hours credit** — Program development and design techniques including structured/composite design, data structure decomposition, programming style, program testing and debugging, and other current topics. Prerequisite: CSE 3346.

**4312. CONCEPTS OF FILE PROCESSING (3-0) 3 hours credit** — Information structures for external storage, file processing, and information retrieval. Introduction to database system concepts, including multiple file organization, data independence, languages for data description and manipulation. Prerequisite: CSE 3302, 3306, and 3345.

**4315. COMPUTER ORGANIZATION II (3-0) 3 hours credit** — Various large scale computer organizations, microprogramming, microprocessors, and the uses of microprocessors in various computer organizations. Prerequisite: CSE 3441.

**4322. COMPUTER ARCHITECTURE (3-0) 3 hours credit** — An introduction to the study of the design and implementation of digital computing devices and peripherals. Information representation, instruction sets, and interaction of peripherals are covered. Emphasis on consideration of hardware and software as a system. Prerequisite: CSE 3441.

**4342. MINI AND MICRO COMPUTER SYSTEMS DESIGN (2-3) 3 hours credit** — The design and applications of mini and micro computer systems. Topics include microprocessors in both small scale and large scale systems and laboratory experiments in their interfacing and usage. Prerequisites: CSE 4441 and senior standing.

**4343. MINI-MICRO COMPUTER CONTROLS (2-3) 3 hours credit** — The use of mini and micro computers in instrumentation and control systems. Laboratory projects used to give a "hands on" experience with computer systems. Prerequisites: CSE 4441 and EE 3317.

**4344. COMPUTER NETWORK ORGANIZATION (3-0) 3 hours credit** — Design of computer systems to support the implementation of distributed computing systems. Prerequisites: CSE 4304 and 4441 or concurrent enrollment.

**4441. MINI AND MICRO COMPUTER PROGRAMMING (3-3) 4 hours credit** — Techniques and languages used in programming mini and micro computers. Applications of these computers will be made to a number of laboratory experiments in a variety of disciplines. Prerequisite: CSE 3441.

# The Department of ELECTRICAL ENGINEERING

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## REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN ELECTRICAL ENGINEERING

### PRE-ENGINEERING COURSES

<b>English:</b>	1301, 1302.
<b>Mathematics:</b>	1325*, 1326, 2325, 2326, 3318.
<b>Science:</b>	CHEM 1301*, 1302, 1284; PHYS 1443, 1444, 3313.
<b>Civil Eng.:</b>	2311**.
<b>Computer Sci.:</b>	2306***.
<b>Design Graphics:</b>	1242*, 1243
<b>General Eng.:</b>	1101.
<b>Mech. Eng.:</b>	2321.
<b>Elect. Eng.:</b>	2180, 2315, 2316, 2318.

### HUMANISTIC-SOCIAL COURSES

<b>English:</b>	Three hours 2000 level literature.
<b>Political Sci.:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>#Electives:</b>	Six hours of humanistic-social courses (2000 or higher).

### PROFESSIONAL ENGINEERING COURSES

<b>Aero Eng.:</b>	3323**
<b>Mech. Eng.:</b>	3311.
<b>Elect. Eng.:</b>	3180 (2 credits), 3302, 3303, 3304, 3306, 3319, 3317, 3336, 4101, 4180 (2 credits); 15 hours of 4000 level courses with at least nine hours from the following: 4310, 4314, 4326, 4329, 4330, 4303.
<b>#Tech. Electives:</b>	Six hours of engineering courses outside the electrical engineering field, three hours advanced mathematics.

**Total (Prof. Eng.  
Prog.)**

56 hours.

**Total Hum.-Social  
Courses**

21 hours.

**Total (Pre-Eng.  
Prog.)**

61-64 hours.

**Total (BSEE Degree)**

138-141 hours plus physical education or military science or marching band as required.

Each currently enrolled pre-electrical engineering major or professional electrical engineering major should receive degree plan counseling and pre-registration counseling from a departmental faculty counselor during the period set aside each semester for this purpose. Consult the department curriculum bulletin board to determine the name of your counselor and the dates established for the next pre-registration counseling. New students and transfer students should see the department chairman for counseling instructions.

\*Depending upon the student's prior preparation, or scores on placement tests or advancement standing examinations, the student may be allowed to take fewer or required to take more courses in these areas. See section concerning "placement" in College of Engineering section of this catalog.

\*\*These required courses may be replaced by the AE 2312 and 2324 series, Mechanics I and II.

\*\*\*May be replaced by IE 2302 or EE 2303.

#All electives subject to departmental approval.

## ELECTRICAL ENGINEERING

Special degree plans differing in some respects from the requirements above are possible for students desiring an electrical engineering major directed toward applications such as bioengineering. In particular, a distribution of the mathematics elective and technical electives other than that shown above may be approved if the total program meets the minimum requirements for the electrical engineering degree. In the selection of technical electives at least six hours must be in an area of engineering design and analysis.

### **Suggested Course Sequence:**

#### **FRESHMAN YEAR**

**First Semester:** MATH 1325\*, PHYS 1443; GE 1101; DG 1242\*; CHEM 1301\*; ENGL 1301; Physical Education or Military Science or Marching Band — Total Credit 17 hours.

**Second Semester:** MATH 1326; PHYS 1444; DG 1243; CHEM 1302; CHEM 1284; ENGL 1302; Physical Education or Military Science — Total Credit 18 hours.

#### **SOPHOMORE YEAR**

**First Semester:** MATH 2325; EE 2315; CSE 2306; ME 2321; English literature (2000 level); HIST 1311; Physical Education or Military Science or Marching Band — Total Credit 19 hours.

**Second Semester:** MATH 2326; MATH 3318; EE 2316; EE 2318; EE 2180; HIST 1312; Physical Education or Military Science — Total Credit 17 hours.

#### **SUMMER**

CE 2311\*\*; PHYS 3313; POLS 2311; POLS 2312 — Total Credit 12 hours.

**See footnotes at the bottom of the first page of Electrical Engineering section.**

#### **JUNIOR YEAR**

(PREREQUISITE: ADMISSION TO THE PROFESSIONAL PROGRAM)

**First Semester:** EE 3180; EE 3303; EE 3319; EE 3302; EE 3317; Engr. Elective — Total Credit 16 hours.

**Second Semester:** EE 3180; EE 3304; EE 3306; EE 3336; AE 3323; MATH Elective 3, 3 hours — Total Credit 16 hours.

#### **SENIOR YEAR**

**First Semester:** EE 4101; EE 4180; ME 3311; Humanistic Social Elective, 3 hours; EE Electives 3, 9 hours — Total Credit 17 hours.

**Second Semester:** EE 4180; Humanistic Social Elective, 3 hours; Engr. Elective, 3 hours; EE Electives#, 6 hours — Total Credit 13 hours.

**#At least 9 hours from EE 4329; EE 4326; EE 4303; EE 4314; EE 4330; EE 4310.**

**See footnotes at the bottom of the first page of Electrical Engineering section.**

## **ELECTRICAL ENGINEERING (EE)**

*Acting Chairman: Professor Jiles*

*Professors Cash, Chen, Fitzer, Owens, Potvin, Rao, Rouse, Salis, Smith, Spradlin*

*Associate Professors Cannon, Carter, Dillon, Rucker, Shouls*

*Assistant Professors Kondraske, Manry*

*Adjunct Professor Patton*

*Adjunct Associate Professor Welch*

*Adjunct Assistant Professor Cunningham*

The electrical engineering curriculum is based on foundation courses in mathematics and science followed by core courses in electromagnetic fields, circuits, and electronics. Through the selection of technical electives, the student may specialize in certain fields of electrical engineering such as energy systems, electronics, electromagnetics, communications, and control systems. The curriculum is accredited by the Engineering Education and Accreditation Committee of the Accreditation Board for Engineering and Technology (ABET, formerly known as ECPD).

**2180. SOPHOMORE ELECTRICAL ENGINEERING LABORATORY (0-3) 1 hour credit** — Supports EE 2315 and 2318. Experiments demonstrate basic network laws and acquaint students with electrical instruments and the properties of electrical materials. Prerequisite: EE 2315 or concurrent enrollment. **\$2 lab fee.**

**2302. COMPUTER SOLUTION OF ELECTRICAL ENGINEERING PROBLEMS (3-0) 3 hours credit** — Introduction to use of computers for solution of engineering problems. Introductions to BASIC and FORTRAN, computer use in both batch and interactive modes, and use of software packages such as SPICE and ECAP.

## ELECTRICAL ENGINEERING

- 2315. CIRCUIT ANALYSIS I** (3-0) 3 hours credit — Basic E-M principles as related to circuit concepts of R, L, and C. Kirchhoff's laws, power flow, resistive network analysis, loop and node equations, wye-delta conversions, topology, basic network theorems. Magnetic circuits. Computer-assisted solution of large-scale problems. Elementary transient analysis of R-L, R-C, and L-C circuits. Prerequisites: PHYS 1444; MATH 2325 and CSE 2306 or concurrent enrollment.
- 2316. CIRCUIT ANALYSIS II** (3-0) 3 hours credit — Steady-state A-C phasor analysis, including element laws, Kirchhoff's laws, phasor diagrams, loop and node equations, network theorems. Power, reactive power, resonance, circular loci, mutual inductance, and transformers. Dependent sources, linear variational models, and introduction to two-port networks and polyphase power networks. Prerequisites: EE 2315; MATH 2326 or concurrent enrollment.
- 2318. ELECTROMAGNETICS I** (3-0) 3 hours credit — Analysis of static electric and magnetic fields in vacuum and various materials leading to the formulation of Maxwell's equations. Prerequisites: EE 2315; MATH 3318, or concurrent enrollment.
- 3180. JUNIOR ELECTRICAL ENGINEERING LABORATORY I and II** (0-3) 1 hour credit — Supplements the theory covered in the junior year. Prerequisites: EE 2180; EE 3303 or concurrent enrollment. May be repeated for credit when the student meets the following prerequisite: EE 3304 or concurrent enrollment. **\$2 lab fee.**
- 3302. ENERGY CONVERSION** (3-0) 3 hours credit — A study of methods for deriving the force equations for electromechanical transducers with emphasis on quasi-static magnetic field systems and rotating machines. The course includes methods of solving electrodynamic equations of motion and the modeling of rotating machines for steady-state behavior. Prerequisites: EE 2316 and EE 2318.
- 3303. ELECTRONICS I** (3-0) 3 hours credit — Characteristics and circuit models for diodes, bipolar junction transistors, and field-effect transistors. Circuit applications for diodes. Low-frequency amplifier circuits. Prerequisites: EE 2318, EE 2316; PHYS 3313.
- 3304. ELECTRONICS II** (3-0) 3 hours credit — Analysis and design of electronic circuits. Feedback amplifiers, frequency response, operational amplifier characteristics and circuit applications, and active filters. Prerequisites: EE 3303 and EE 3317.
- 3306. ENERGY SYSTEMS** (3-0) 3 hours credit — Electrical energy systems, including the generation, transmission, distribution, and utilization of electrical energy. The philosophy of modeling a three-phase power system. The method of symmetrical components and its application to power system problems. Prerequisite: EE 3302 or concurrent enrollment.
- 3317. LINEAR SYSTEMS** (3-0) 3 hours credit — Electro-mechanical analogies, time-domain transient analysis, convolution, Fourier Series and Transforms, Laplace Transforms and applications, transfer functions, signal flow diagrams, Bode plots, stability criteria, sampling and Z-transforms. Prerequisites: EE 2316 and MATH 3318.
- 3319. ELECTROMAGNETICS II** (3-0) 3 hours credit — Maxwell's equations applied to wave propagation, and radiation in the bounded and unbounded cases, transmission lines, waveguides, and antennas. Prerequisites: EE 2318; MATH 3318.
- 3336. DIGITAL SYSTEMS DESIGN** (3-0) 3 hours credit — The theory and design of combinational logic circuits with introduction to traditional sequential machine design. Topics include number systems, Boolean algebra and Boolean function reduction, design with MSI and LSI circuits, sequential machine fundamentals. Prerequisite: junior standing in engineering and science.
- 3442. ELECTRONICS FOR SCIENTISTS** (3-3) 4 hours credit — Offered to science and engineering students (other than electrical engineering majors) for the purpose of providing a background in the theory and use of electronic devices, circuits, and components used in research instrumentation and data acquisition. Includes three hours of lecture and three hours of laboratory work per week. Prerequisites: PHYS 1444; MATH 2325. **\$2 lab fee.**
- 4101. ELECTRICAL ENGINEERING SENIOR SEMINAR** (1-0) 1 hour credit — Periodic seminar sessions on current technical topics and departmental counseling in such areas as admission requirements for graduate schools, employment opportunities, development of engineering professionalism, and career planning. Prerequisite: senior standing or permission of the department chairman.
- 4180. SENIOR ELECTRICAL ENGINEERING LABORATORY** (0-3) 1 hour credit — A series of experiments in electro-mechanical energy conversion, communications, and digital logic circuits. Repeated with a flexible set of experiments appropriate to the student's senior electrical engineering elective course. Prerequisite: completion of or concurrent enrollment in the electrical engineering elective(s) listed by the department for the experiments. **\$2 lab fee.**
- 4190. ELECTRICAL ENGINEERING SEMINAR** (1-0, individual instruction) 1 hour credit — Topics will vary from semester to semester and will be determined by the instructor. May be repeated provided that the topics covered are different. Prerequisite: consent of the department.
- 4193. ELECTRICAL ENGINEERING PROJECTS LABORATORY** (0-3, individual instruction) 1 hour credit — After receiving advanced approval from the Electrical Engineering Department, a student may be allowed to substitute this special projects laboratory for one of the required electrical engineering laboratory courses. Prerequisite: consent of the department. **\$2 lab fee.**
- 4303. COMPUTER METHODS IN POWER SYSTEM ANALYSIS** (3-0) 3 hours credit — Study and application of computer solutions to load flow, short circuit, and transient stability problems in

modern power system analysis. Representative case studies to provide insight into power system behavior. Review of matrix algebra and power system representation. Prerequisite: EE 3306.

**4304. ELECTRICAL MACHINERY (3-0) 3 hours credit** — A study of modeling and analysis of rotating machinery. The steady state behavior of cylindrical and salient pole rotor synchronous machines. Prerequisite: EE 3302.

**4305. PRINCIPLES OF DIRECT ENERGY CONVERSION (3-0) 3 hours credit** — Various forms of direct energy conversion. Emphasis on the basic principles and phenomena underlying thermo-electric, photovoltaic, electrochemical, magnetohydrodynamic, and electrodynamic effects as well as on the design and analysis of present-day devices. Prerequisite: senior standing.

**4306. INTRODUCTION TO PROTECTIVE RELAYING (3-0) 3 hours credit** — A study of methods for protecting power system elements against abnormal conditions. Application of fault detection instruments. Prerequisite: EE 3302 and EE 3306.

**4310. MICROPROCESSORS (3-0) 3 hours credit** — The design of digital systems with microprocessors. Techniques of program development, hardware design, and device selection. Prerequisite: EE 3336.

**4312. ADVANCED ELECTROMAGNETIC FIELDS (3-0) 3 hours credit** — Advanced mathematical techniques applied to the formulation and solution of problems in electromagnetic fields. Prerequisite: EE 3319.

**4314. CONTROL SYSTEMS (3-0) 3 hours credit** — Analysis of closed loop systems using frequency response, root locus, and state variable techniques. Design analysis and synthesis techniques developed for the study of system performance. Electrical, mechanical and hydraulic systems. Prerequisite: EE 3317.

**4317. INTRODUCTION TO NETWORK SYNTHESIS (3-0) 3 hours credit** — The realizability conditions and systematic realization procedures for 1-port and 2-port networks. Generally restricted to passive networks. Prerequisite: EE 3317.

**4321. COMPUTER AIDED DESIGN (3-0) 3 hours credit** — The computer used as an aid in designing engineering systems. System performance parameters obtained using problem-oriented languages. Prerequisites: CSE 2306 and EE 3304.

**4326. MICROWAVE SYSTEMS (3-0) 3 hours credit** — Microwave generators, modulators, detectors and transmission systems. Prerequisite: EE 3319.

**4327. THEORY AND DESIGN OF ANTENNAS (3-0) 3 hours credit** — Basic theory of antennas with emphasis on design and engineering application. Prerequisite: EE 3319.

**4328. CURRENT TOPICS IN ELECTRICAL ENGINEERING (3-0) 3 hours credit** — To introduce current topics into the curriculum prior to the creation of permanent course numbers. A notice listing a descriptive course title, a course description, and the name of the instructor will be posted outside the departmental office each time the course is offered. May be repeated for credit provided the course contents are changed. Prerequisite: consent of instructor.

**4329. PHYSICAL ELECTRONICS (3-0) 3 hours credit** — The physics of solids, the physical principles and circuit models of diodes, bipolar transistors, and field effect transistors, and an introduction to the technology of integrated circuits and quantum electronic devices. Prerequisite: EE 3304.

**4330. INFORMATION TRANSMISSION (3-0) 3 hours credit** — The meaning and measure of information, distortion of wave-forms, time-domain and frequency-domain analysis techniques, amplitude modulation, pulse modulation, sampling, multiplexing, and frequency modulation. Prerequisites: EE 3317; EE 3304 or concurrent enrollment.

**4331. NOISE IN COMMUNICATION SYSTEMS (3-0) 3 hours credit** — Statistical methods introduced. Sources of electrical noise, analysis methods for noisy circuits, signal-to-noise comparison for common modulation methods, threshold detection, matched filtering, power spectral density, and correlation functions. Prerequisite: EE 4330.

**4332. ELECTRONIC DEVICES (3-0) 3 hours credit** — The application of integrated circuits in electronic circuit design. Prerequisite: EE 3304.

**4334. DIGITAL SYSTEM CONTROLLER DESIGN (3-0) 3 hours credit** — The design of multi-input digital system controllers including the use of MSI/LSI circuits and the design of asynchronous finite-state machines. Prerequisite: EE 3336.

**4337. COMPUTING CIRCUITS (3-0) 3 hours credit** — The methods of applying analog computers to determine the response of dynamic systems. Programming techniques for linear, nonlinear, and time-variable systems. Set-up and checkout procedures. Methods to determine probable solution errors, and techniques of error analysis. Prerequisite: MATH 3318.

**4339. RADIO-FREQUENCY CIRCUIT DESIGN (3-0) 3 hours credit** — Design of radio receiver and transmitter circuits including such topics as oscillators, heterodyne mixers, frequency multipliers, small-signal I-F amplifiers, and power amplifiers. Prerequisite: EE 3304.

**4390. ELECTRICAL ENGINEERING SEMINAR (3-0, individual instruction) 3 hours credit** — Topics will vary from semester to semester and will be determined by the instructor. May be repeated provided that the topics covered are different. Prerequisite: consent of the department.

**4391. ADVANCED PROBLEMS IN ELECTRICAL ENGINEERING (3-0, individual instruction) 3 hours credit** — A research project under the direction of a faculty supervisor. May be taken as a technical elective with the permission of the department.

# The Department of INDUSTRIAL ENGINEERING

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## REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN INDUSTRIAL ENGINEERING

<b>English:</b>	1301, 1302, and three hours of literature (2000 or higher).
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>*Mathematics:</b>	1325, 1326, 2325, 2326, 3318.
<b>*Science:</b>	CHEM 1302, 1284; PHYS 1443, 1444.
<b>Gen. Eng.:</b>	1101.
<b>*Design Graphics:</b>	1242, 1243.
<b>Computer Science:</b>	2306.
<b>Civil Eng.:</b>	2311, 3311.
<b>Elect. Eng.:</b>	2315, and 2316 or 3442 or 3336.
<b>Mech. Eng.:</b>	3311, and 3313 or Civil Eng. 3305.
<b>Ind. Eng.:</b>	2341, 2342, 3301, 3312, 3314, 3315, 3316, 3343, 4303, 4308, 4315, 4343, 4344.
<b>Aero. Eng.:</b>	3323.
<b>**Electives:</b>	Six hours of humanistic-social courses (2000 or higher). Three hours of physical science. 12 hours of technical electives, with prior approval of department chairman.
<b>Total:</b>	135-143 hours, depending on student's prior preparation, plus physical education or military science or marching band as required.

\* Depending upon the student's prior preparation, or scores on placement tests or advanced standing examinations, the student may be allowed to take fewer or required to take more courses in these areas. See sections concerning "placement" in College of Engineering section.

\*\* Students should have an approved degree plan listing all electives by name and number prior to registration for any elective.

The Industrial Engineering Department conducts a pre-enrollment counseling week. Each student should meet with a faculty advisor during this week. Specific dates and times will be posted on the departmental bulletin board.

### ***Suggested Course Sequence:***

#### **FRESHMAN YEAR**

**First Semester:** MATH 1325; PHYS 1443; ENGL 1301; GE 1101; DG 1242; CSE 2306; Physical Education or Military Science or Marching Band — Total Credit — 17 hours.

**Second Semester:** CHEM 1302; CHEM 1284; ENGL 1302; MATH 1326; DG 1243; PHYS 1444; Physical Education or Military Science — Total Credit 18 hours.

\* The suggested course sequence for the freshman year assumes that the student has been placed in MATH 1325, CHEM 1302, PHYS 1443, and DG 1242.

#### **SOPHOMORE YEAR**

**First Semester:** HIST 1311; MATH 2325; IE 3312; IE 2341; CE 2311; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 hours.

**Second Semester:** Technical Elective, 3 hours; MATH 2326; IE 3301; IE 2342; IE 3343; Physical Education or Military Science — Total Credit 16 or 17 hours.

#### **SUMMER TERM**

HIST 1312; Technical Elective, 3 hours; CE 3311 — Total Credit 9 hours.

# INDUSTRIAL ENGINEERING

## JUNIOR YEAR

**First Semester:** MATH 3318; EE 2315; AE 3323; IE 3314; IE 3316 — Total Credit 15 hours.

**Second Semester:** English (2000 literature course), 3 hours; IE 4344; IE 3315; EE 2316; POLS 2311; Physical Science Elective, 3 hours — Total Credit 18 hours.

## SENIOR YEAR

**First Semester:** ME 3311; IE 4308; IE 4315; IE 4343; Social-Humanistic Elective, 3 hours; Technical Elective, 3 hours — Total Credit 18 hours.

**Second Semester:** POLS 2312; ME 3313; IE 4303; Social-Humanistic Elective, 3 hours; Technical Elective, 3 hours — Total Credit 15 hours.

## INDUSTRIAL ENGINEERING (IE)

*Chairman: Professor Stevens*

*Professor Meier*

*Associate Professors Corley, Deivanayagam, Khan, Pape*

*Assistant Professors Liles, Priest*

*Adjunct Assistant Professors DeZern, Pippin*

The industrial engineering curriculum is designed to place emphasis on the analytical and engineering aspects of the profession. Building upon a base of fundamental engineering and with a strong mathematical core, the advanced courses in operations research, human factors, production measurement, computer science, systems design, and control theory are intended to prepare the students to enter the professional activities of analyzing, designing, improving, and controlling production systems.

As part of their professional development, all industrial engineering students are encouraged to join and participate in the activities of the student chapter of the American Institute of Industrial Engineers (AIIE). Membership is available to all students with an interest in the industrial engineering profession.

**2301. INDUSTRIAL ENGINEERING ANALYSIS (3-0)** 3 hours credit — Introduction to industrial engineering analysis, including scientific methodology, economic criteria, and problems of data collection, presented in the context of the industrial engineer's position relative to other engineering and management activities. Prerequisite: MATH 1326 or concurrent registration and consent of the head of department.

**2302. COMPUTATIONAL METHODS IN ENGINEERING (3-0)** 3 hours credit — An introduction to the modeling and structuring of industrial engineering problems and systems. Solutions will incorporate FORTRAN and BASIC computer languages.

**2341. INDUSTRIAL INFORMATION SYSTEM DESIGN I (2-3)** 3 hours credit — The design and analysis of industrial information systems. Prerequisite: knowledge of computer programming.

**2342. INDUSTRIAL INFORMATION SYSTEM DESIGN II (2-3)** 3 hours credit — A continuation of IE 2341. Prerequisite: IE 2341.

**3112. OPERATIONS RESEARCH SEMINAR (1-0)** 1 hour credit — Current problems and lines of thinking in operations research. Prerequisite: IE 3315.

**3301. ENGINEERING PROBABILITY (3-0)** 3 hours credit — Topics in industrial engineering that involve random processes. Applications to and backgrounds for topics in reliability, inventory systems, and queuing problems, including absolute and conditional probabilities, discrete and continuous random variables, and hypothesis testing. Prerequisite: MATH 2326 or concurrent enrollment.

**3312. ENGINEERING ECONOMY (3-0)** 3 hours credit — Methods used for determining the comparative financial desirability of engineering alternatives. Prerequisite: MATH 2325 or concurrent enrollment.

**3314. ENGINEERING RESEARCH METHODS (3-0)** 3 hours credit — A continuation of IE 3301. Primary emphasis on the construction of linear models of engineering data, testing hypotheses, and analyzing of variance. Prerequisite: IE 3301.

**3315. OPERATIONS RESEARCH I (3-0)** 3 hours credit — Introduction to the major techniques of operations research and their application to management decision problems. Linear programming, network analysis, dynamic programming, game theory, and queuing theory. Prerequisites: IE 3301 or concurrent enrollment and MATH 3318.

**3316. ENGINEERING ADMINISTRATION AND ORGANIZATION (3-0)** 3 hours credit — A survey of administration control and organization as it relates to engineering and research activities. Consideration given to assigning resources to alternative projects. Prerequisite: junior standing.

**3317. ENGINEERING ANALYSIS (3-0)** 3 hours credit — Technical problems of primary interest to industrial engineers formulated and techniques necessary for their solution. Prerequisite: MATH 3318 and junior standing in industrial engineering.

## INDUSTRIAL ENGINEERING

- 3318. HUMAN FACTORS FUNDAMENTALS** (3-0) 3 hours credit — The human characteristics and processes which provide background for engineering applications. Topics include the circulatory, respiratory, muscular, skeletal and neural systems and instrumentation for measurements of their characteristics. Prerequisite: junior standing in engineering.
- 3343. MEASUREMENT, ANALYSIS, AND SIMPLIFICATION OF INDUSTRIAL ACTIVITIES** (2-3) 3 hours credit — Methods for determining the most effective utilization of effort in the man-machine environment. Credit will not be granted for both IE 2441 (no longer offered) and 3343. Prerequisite: MATH 2326 or concurrent enrollment.
- 4112. INDUSTRIAL ENGINEERING SEMINAR** (1-0) 1 hour credit — Presentations by students and guided discussion of current industrial problems and techniques of importance to industrial engineers. Prerequisite: senior standing in industrial engineering or consent of the instructor.
- 4191, 4291, 4391. SPECIAL PROBLEMS IN INDUSTRIAL ENGINEERING** (Variable credit from 1 to 3 semester hours as arranged, individual instruction) — The investigation of special individual problems in industrial engineering under the direction of a faculty member. Prerequisite: consent of the head of the department.
- 4302. LABOR REGULATION AND PRODUCTION ACTIVITY** (3-0) 3 hours credit — The interplay of the industrial engineering of production standards, the labor union movement, and legislative regulation considering the effects of such factors as automation, incentive payment systems, and machine pacing. Prerequisites: IE 3343 or concurrent enrollment and 3316.
- 4303. PRODUCTION AND INVENTORY CONTROL** (3-0) 3 hours credit — Fundamental theory and design of systems for the control of production, inventories and their economic interaction, particularly in cases involving uncertainty of demand, of supply availability, and of production rates. Prerequisite: IE 3314 and 3315. Credit will not be granted for both IE 4303 and 4317.
- 4304. THEORY OF QUEUES** (3-0) 3 hours credit — An introduction to the theory of queues with particular emphasis on its application to inventory production, and maintenance as well as direct applications. Prerequisites: IE 3301 and 3315.
- 4305. ECONOMIC DECISION MAKING** (3-0) 3 hours credit — The method and techniques for evaluating capital investments, making cost comparisons, and replacement studies. Prerequisites: IE 3301 and 3312. Credit will not be granted for both IE 4305 and 4309.
- 4306. ANALYSIS, PLANNING, AND CONTROL OF PRODUCTION SUPPORT FUNCTIONS** (3-0) 3 hours credit — The problems and methods of attack in the planning, management, conduct, and control of operations in such areas as research and development, maintenance, etc. Prerequisites: IE 3315 and 4303.
- 4307. INFORMATION THEORY** (3-0) 3 hours credit — The development of measures of information, and its rate of transfer under various conditions. Considerations given to sampling, encoding, in discrete and continuous systems and the noise problems. Prerequisite: IE 3301.
- 4308. STATISTICAL QUALITY CONTROL** (3-0) 3 hours credit — Process control plans, control charts for non-normal distributions, economics of sampling, sequential and continuous sampling plans. Prerequisite: IE 3301.
- 4309. ECONOMIC DECISION MAKING** (3-0) 3 hours credit — The theoretical basis for decision criteria used in engineering economy, capital budgeting, and other economic problems. Prerequisites: IE 3301, 3312, and 3315. Credit will not be granted for both IE 4309 and 4305.
- 4310. INDUSTRIAL AND PRODUCT SAFETY** (3-0) 3 hours credit — Methods to reduce hazards in industry and its products. A survey of methods for testing product safety and problems of manufacturer liability. Prerequisite: junior standing.
- 4311. HUMAN INFORMATION PROCESSING** (3-0) 3 hours credit — A brief survey of the senses and stimuli. Emphasis on processing of information and the interrelation of information from various sources. Prerequisites: IE 3301 and MATH 3318.
- 4312. HUMAN CAPABILITIES** (3-0) 3 hours credit — Man's ability to perform production, surveillance, and decision-making tasks. Basic information drawn from research and theoretical sources and related to the operating environment. Prerequisite: IE 4344.
- 4313. INDUSTRIAL HYGIENE ENGINEERING** (3-0) 3 hours credit — Physical and physiological aspects of the interactions between man and thermal, atmospheric, radiant, chemical, and mechanical agents and energies in the industrial environment and requirements for engineering control. Prerequisite: IE 4344 or consent of the instructor.
- 4314. INDUSTRIAL ENGINEERING SYSTEMS ANALYSIS** (3-0) 3 hours credit — A rigorous mathematical treatment of the systems engineering techniques required by the modern industrial engineer. Prerequisites: IE 3301 and 3315 and MATH 3318.
- 4315. OPERATIONS RESEARCH II** (3-0) 3 hours credit — A continuation of IE 3315. Applications of queuing theory, inventory theory, Markov chains, advanced topics in linear programming, and nonlinear programming. Prerequisite: IE 3315.
- 4316. INDUSTRIAL BUDGETARY CONTROL** (3-0) 3 hours credit — The relation between the financial status of industry and the design activity. Project costs, sources of capital, and budgeting expenses along with management of investments. Prerequisite: senior standing.
- 4317. INVENTORY AND PRODUCTION CONTROL** (3-0) 3 hours credit — A study of the methods and techniques for controlling and monitoring production, maintenance, and inventory systems. Prerequisites: IE 3301 and 3312. Credit will not be granted for both IE 4317 and 4303.



## INDUSTRIAL ENGINEERING

**4322. SIMULATION OF INDUSTRIAL SYSTEMS** (3-0) 3 hours credit — Use of discrete event-simulation techniques for the solution of complex industrial systems. Additional topics include a review of Monte Carlo processes and a survey of computer languages used in discrete event-simulation. Prerequisite: IE 3301 and concurrent enrollment in either IE 3315 or IE 4303.

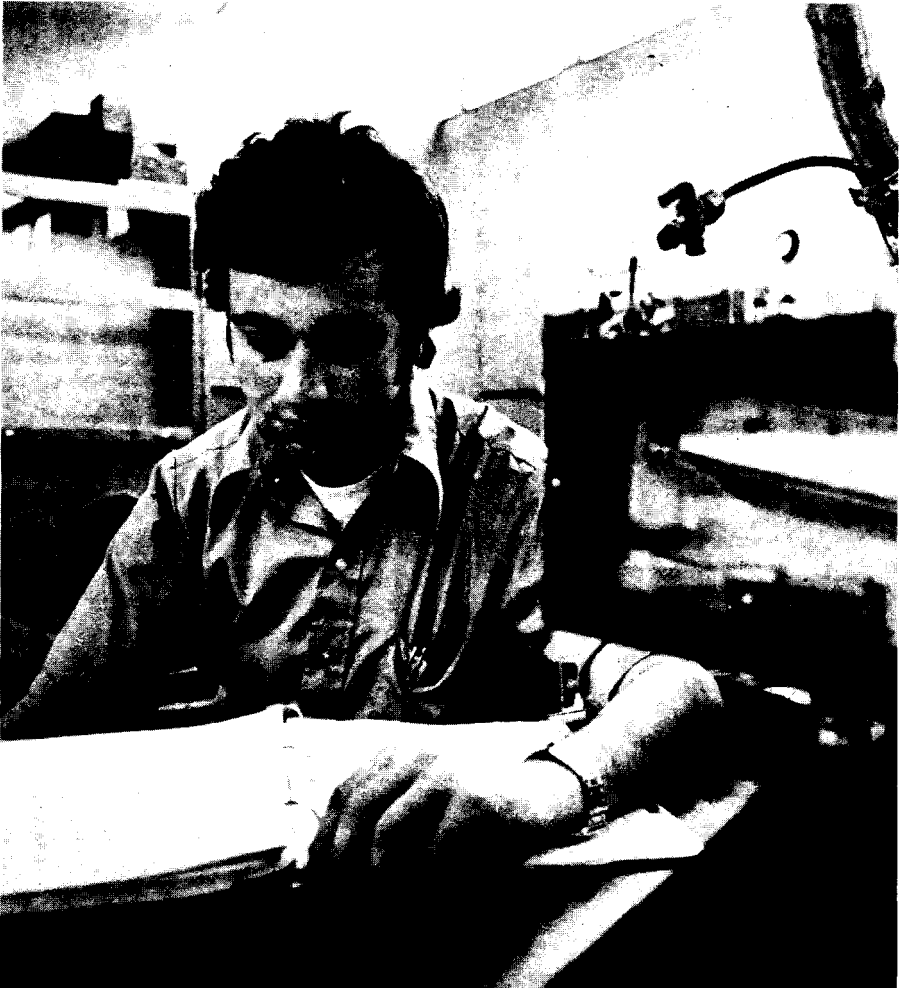
**4323. QUALITY CONTROL AND RELIABILITY** (3-0) 3 hours credit — A continuation of IE 4308. Current topics in quality control and an introduction to the reliability of components and systems. Prerequisite: IE 4308.

**4343. DESIGN OF PRODUCTION SYSTEMS** (1-6) 3 hours credit — The location, component selection, and arrangement and integration of subsystems for a complete production facility. Prerequisite: IE 3343 and 4303.

**4344. HUMAN FACTORS ENGINEERING** (2-3) 3 hours credit — Methods of determining limitations placed on production or other mechanical systems by human physiological and psychological limitations. Prerequisite: IE 3314.

**4345. INDUSTRIAL PROJECTS** (1-6) 3 hours credit — The student will be assigned to a problem in some company in the area. An analysis of the problem and the design of a solution will be required. Prerequisites: IE 3315, 3316, 3343, and 4343.

**4346. ADVANCED WORK MEASUREMENT** (2-3) 3 hours credit — Theory and practice of advanced work-time relationships. Includes predetermined times, standard data, and performance rating. Factors affecting work measurement, such as fatigue, learning, and physiological considerations, are included. Prerequisites: IE 3301 and 3343.



# The Department of MECHANICAL ENGINEERING

## REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN MECHANICAL ENGINEERING

<b>English:</b>	1301, 1302, and three hours of literature (2000 or higher).
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>*Mathematics:</b>	1325, 1326, 2325, 2326, 3318.
<b>Electives:</b>	Six hours of humanistic-social courses (2000 or higher).
<b>Elect. Eng.:</b>	2315, and three hours approved elective.
<b>*Science:</b>	CHEM 1284, 1301, 1302; PHYS 1443, 1444.
<b>Aero Eng.:</b>	2312 (or CE 2311), 2324 (if AE 2312 was taken), 3323 (if CE 2311 was taken), 3311 (or CE 3311).
<b>Civil Eng.:</b>	2311 (or AE 2312) (note that AE 3323 should follow CE 2311), 3311 (or AE 3311).
<b>Gen. Eng.:</b>	1101.
<b>*Design Graphics:</b>	1242, 1243.
<b>Mech. Eng.:</b>	2181, 2301, 2306**, 2321, 3282, 3283, 3302, 3311, 3312, 3313, 3316, 3318, 3322, 3342, 3345, 4184, 4285, 4286, 4310, 4313, 4342.

### Technical

**Electives:** Nine hours in engineering or science (an approved block).

**Total:** 130-141 hours, depending on student's prior preparation, plus physical education or military science or marching band as required.

\*Depending upon the student's preparation, or scores on placement tests or advanced standing examinations, the student may be allowed to take fewer or required to take more courses in these areas. See section concerning "placement" in College of Engineering section of this catalog. The 130-hour degree program is applicable for a student who is exempted from MATH 1325, CHEM 1301, and DG 1242 and who is qualified to take PHYS 1531 in place of PHYS 1443 and 1444.

\*\*May be replaced by IE 2302, EE 2302, or CSE 2306.

During each long semester, the Mechanical Engineering Department conducts a preenrollment counseling week. Each student shall meet with the faculty advisor assigned to the student during the counseling week to complete an Enrollment Approval Form. This form is required for registration in courses at enrollment. Transfer students or students who need counseling at times other than the designated week should inquire at the departmental office, Room 335, Engineering Building. See section concerning "Required Counseling" in College of Engineering section of this catalog.

For admission to the mechanical engineering program, all students must meet the requirements for admission to the College of Engineering. In addition, students transferring from another institution or changing majors into mechanical engineering must show an average of 2.25 in their mathematics, science, and engineering courses.

### **Suggested Pre-Engineering Course Sequence:**

#### FRESHMAN YEAR

**First Semester:** ENGL 1301; MATH 1325; PHYS 1443; DG 1242; GE 1101; Physical Education or Military Science or Marching Band — Total Credit 17 hours.

**Second Semester:** ME 2306; ENGL 1302; MATH 2325; CHEM 1301; PHYS 1444; DG 1243; Physical Education or Military Science — Total Credit 18 hours.

#### SOPHOMORE YEAR

**First Semester:** CHEM 1302; CHEM 1284; MATH 2326; AE 2312 or CE 2311; ME 2301; HIST 1311; Physical Education or Military Science or Marching Band — Total Credit 18 or 19 hours.

**Second Semester:** MATH 3318; AE 2324 or AE 3323; EE 2315; ME 2181; ME 2321; ME 3311; Physical Education or Military Science — Total Credit 17 or 18 hours.

## MECHANICAL ENGINEERING

Upon completion of at least 60 hours toward a degree in mechanical engineering, the student will be eligible for admission to the Professional Engineering Program. The 60 hours must include all courses listed for the first two years with the following flexibilities: any three hours of approved Humanistic/Social Sciences may be taken instead of HIST 1311, and any nine hours from MATH 3318, EE 2315, AE 2324 (or 3323), AE 3311 (or CE 3311) must be completed. An overall grade average of C and a C average in the engineering, mathematics, and science courses are required for admission to the Professional Program. **Pre-engineering students must have the permission of the department chairman to receive credit for courses not included in the Pre-Engineering category.**

### SUMMER TERM

ME 3312; AE 3311 or CE 3311; Electrical Engineering Elective, 3 hours — Total Credit 9 hours.

### JUNIOR YEAR

First Semester: ME 3282; ME 3313; ME 3318; ME 3322; ME 3345; English Elective, 3 hours — Total Credit 17 hours.

**Second Semester:** ME 3283; ME 3302; ME 3316; ME 3342; ME 4313; Humanistic/Social Elective, 3 hours — Total Credit 17 hours.

### SENIOR YEAR

**First Semester:** ME 4184; ME 4285; ME 4310; ME 4342; POLS 2311; Technical Elective, 3 hours; Humanistic/Social Elective, 3 hours — Total Credit 18 hours.

**Second Semester:** ME 4286; HIST 1312; POLS 2312; Technical Electives, 6 hours — Total Credit 14 hours.

### TECHNICAL ELECTIVE BLOCKS FOR MECHANICAL ENGINEERING MAJORS

#### **Aerospace:**

AE 3305, 3306, 4309.

#### **Bioengineering:**

Must be arranged with the undergraduate advisor in mechanical engineering and the supervisor of the bioengineering program.

#### **Design:**

ME 4307, 4320, 4331, 4332, 4334, 4343.

#### **Energy Conversion:**

ME 4323, 4324, 4326, 4327.

#### **Manufacturing and Materials:**

AE 3312, 4313; ME 4307, 4331, 4337.

#### **Systems and Control:**

ME 4308, 4312, 4315, 4320.

**Other blocks may be arranged with department approval.**

## MECHANICAL ENGINEERING (ME)

*Chairman: Professor Lou*

*Professors Barker, Blackwell, Haji-Sheikh, Johnson, Lawrence, Wiseman, Woolf*

*Associate Professors Goolsby, Hullender, Lawley, Woods*

*Assistant Professors Hefley, Nomura, Tencer*

*Visiting Professor Chen*

*Visiting Associate Professor Gong*

*Assistant Instructors Etekhar, Kinsey, Kugle*

The mechanical engineering curriculum gives approximately equal weight to the general areas of machine design, thermodynamics or energy, systems and control, and materials science. Elective blocks are available in aerospace, bioengineering, energy conversion, design, engineering mechanics, manufacturing, materials, propulsion, and systems and control. Other blocks may be arranged.

The mechanical engineer is concerned with the design and development of many products, methods of manufacturing, and the generation and use of power. Such persons are employed in all industries and, as a consequence, their education must be broad and based firmly on the fundamental engineering sciences.

## **MECHANICAL ENGINEERING**

**2181. MATERIALS SCIENCE LAB (0-3)** 1 hour credit — Experimental studies of the basic mechanical, chemical, and physical properties of materials. Emphasis on the relationships between these macroscopic properties and also the corresponding influence of the atomic and microstructural nature of the materials. Prerequisite or Concurrent: ME 2321. **\$2 lab fee.**

**2301. MANUFACTURING PROCESSES (3-0)** 3 hours credit — Modern manufacturing methods and their application to the forming, machining, and joining of engineering materials. Prerequisite: DG 1242.

**2306. DIGITAL COMPUTATION (3-0)** 3 hours credit — Utilization of calculators and digital computers in the solution of problems in mechanical engineering. Emphasis is placed on computational algorithms and their representation in the languages FORTRAN and BASIC. Prerequisite: MATH 2325 or concurrent.

**2321. MATERIALS SCIENCE (3-0)** 3 hours credit — The physical, mechanical, electrical, and chemical properties of metals, semiconductors, ceramics, polymers, composites and aggregates and the relationships between these properties and the electronic, crystal, micro and macro-structures of the materials. Prerequisites: CHEM 1284, 1302; PHYS 1444. Concurrent: ME 2181. (For ME students only).

**3282. MECHANICAL ENGINEERING LABORATORY I (1-3)** 2 hours credit — Introduction to data analysis, incorporating statistics and probability. Introduction to measurement and instrumentation with emphasis on basic instruments, their calibration, and their use. Prerequisite: ME 3311 and MATH 2325.

**3283. MECHANICAL ENGINEERING LABORATORY II (1-3)** 2 hours credit — Fundamental measurement techniques in mechanical engineering in the fields of thermal/fluid sciences, energy conversion, design and systems control. Introduction of advanced instrumentation concepts. Prerequisites: ME 3282, 3302 (or concurrent enrollment), 3312, 3313, 3322; EE 2315; and AE 3311 or CE 3311.

**3302. HEAT TRANSFER (3-0)** 3 hours credit — The fundamental laws of heat and mass transfer, including steady and unsteady conduction, convection, and radiation. Prerequisites: MATH 3318; ME 3311; ME 3313, and EE 2315 or equivalent.

**3311. THERMODYNAMICS I (3-0)** 3 hours credit — The thermodynamics of gases, vapors, and liquids in various nonflow and flow processes. Prerequisites: MATH 2325, PHYS 1444 or 1531. Prerequisite or concurrent: AE 3323.

**3312. THERMODYNAMICS II (3-0)** 3 hours credit — A continuation of ME 3311, consisting of a study of irreversibility and availability, power and heat pump cycles, property relations and equations of state, ideal gas mixtures, mixtures of gases and vapors, combustion stoichiometry, thermodynamics of combustion, and thermodynamic equilibrium in ideal-gas mixtures. Prerequisites: MATH 2326 and 3318; CHEM 1302; ME 3311.

**3313. FLUID MECHANICS (3-0)** 3 hours credit — The fundamentals of fluid statics, fluid flow concepts, viscous effects, fluid resistance, dimensional analysis and dynamic similitude, and frictionless, compressible flow. Prerequisites: AE 2324 or 3323, ME 3311; and MATH 3318.

**3316. ENGINEERING ANALYSIS I (3-0)** 3 credit hours — The use of analytical and numerical analysis techniques for the performance evaluation and design of dynamic systems. The state-space representation of systems models employed for systems simulation. Prerequisites: ME 3322, MATH 3318 and CSE 2306. Credit will not be given for 3316 and either or both of 3205 and 3206 (no longer offered).

**3318. KINEMATICS AND DYNAMICS OF MACHINES (3-0)** 3 hours credit — The motion and interaction of machine elements. Fundamental concepts of kinematics, statics, and dynamics applied to the determination of forces acting on the parts of machines. Specific mechanisms and applications such as cams, gears, flywheels, and balancing. Prerequisite: AE 2324 or 3323.

**3322. MODELING AND ANALYSIS OF MECHANICAL ENGINEERING SYSTEMS (3-0)** 3 hours credit — An introduction to the modeling and prediction of the behavior of mechanical engineering systems (with laboratory verification). The effects of the physical characteristics of the elements of a system on its dynamic behavior and thus the design process. Prerequisites: PHYS 1444 or 1531, MATH 2326. Prerequisite or concurrent: MATH 3318, EE 2315, and AE 2324 or 3323.

**3342. ENGINEERING DESIGN I (3-0)** 3 hours credit — Material properties and principles of solid mechanics related to the design of machine elements. Prerequisite: AE 3311 or CE 3311. Prerequisites or concurrent: ME 3318 and 3345.

**3345. METALLURGY (2-3)** 3 hours credit — Ferrous and non-ferrous metals and alloys and the effects of mechanical working, heat treatment, and production methods on their microstructure and physical properties. Prerequisite: ME 2321. **\$2 lab fee.**

**4104. SENIOR SEMINAR (0-3)** 1 hour credit — A laboratory in oral and written technical communication. Prerequisite: senior standing in mechanical engineering (100 semester credit hours applicable to degree in mechanical engineering) or permission of instructor.

**4184. DESIGN LABORATORY (0-3)** 1 hour credit — Laboratory instruction draws upon the student's multidisciplinary background for assistance in solving useful and timely design problems. Prerequisite or concurrent: ME 4342.

**4191, 4291, 4391. ADVANCED PROBLEMS IN MECHANICAL ENGINEERING (Variable credit from 1 to 3 semester hours as arranged)** — Special problems in mechanical engineering assigned to

## MECHANICAL ENGINEERING

individual students or groups. Reading materials assigned and frequent conferences held with a faculty supervisor. Final written and oral reports to the faculty required. Prerequisite: permission granted by the Mechanical Engineering faculty, after receipt of a formal request and a statement of work prior to registration.

**4208. NUCLEAR ENGINEERING LABORATORY** (1-3) 2 hours credit — Laboratory techniques in radiation monitoring, counting, neutron activities, radioactive decay, instrument calibration, and neutron flux measurements. Prerequisite: ME 3283 or permission of instructor. Prerequisite or concurrent: ME 4328.

**4285. ENGINEERING SYNTHESIS I** (1-3) 2 hours credit — Investigation of an experimental nature. A student or a small group of students will be working with a faculty member on an engineering problem or project starting from literature search to its completion.

**4286. ENGINEERING SYNTHESIS II** (1-3) 2 hours credit — Continuation of ME 4285.

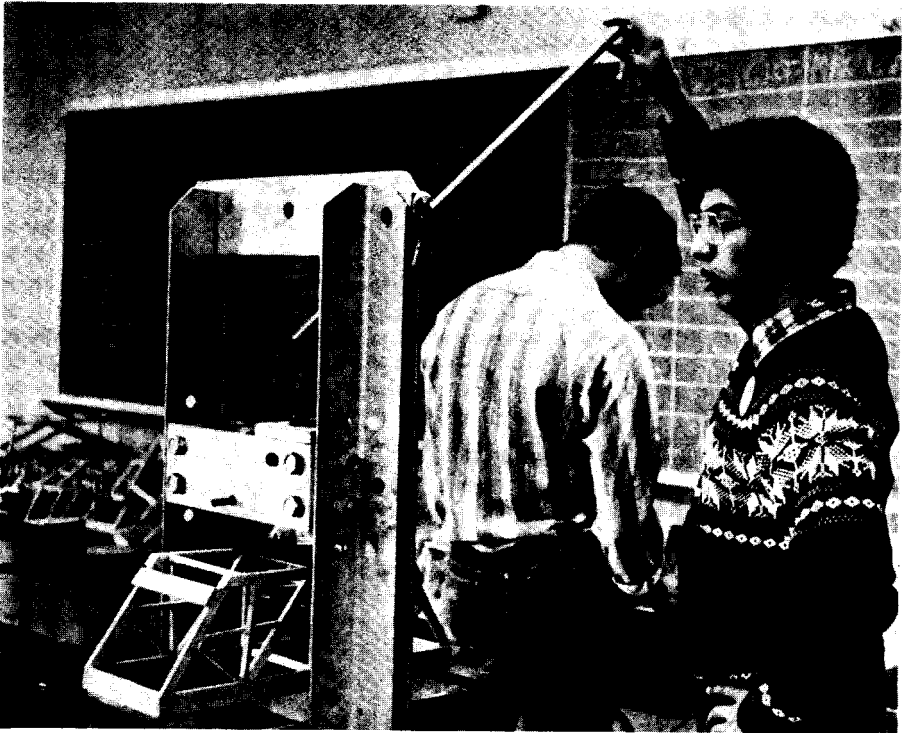
**4307. MANUFACTURING ANALYSIS** (3-0) 3 hours credit — To give the student a quantitative understanding of material behavior, and manufacturing processes and their limitations. Prerequisites: ME 2301, 2321, and 3342.

**4308. INTRODUCTION TO OPTIMIZATION TECHNIQUES** (3-0) 3 hours credit — Introduction to the basic concepts behind the currently used optimization techniques and to the types of problems to which each method is suited. Prerequisite: ME 3316.

**4310. INTRODUCTION TO AUTOMATIC CONTROL** (3-0) 3 hours credit — Block diagram algebra, transfer functions, and stability criteria. The use of transient response, frequency response, and root locus techniques in the performance analysis, evaluation, and design of dynamic systems. Prerequisites: ME 3316 or 3205 and 3206.

**4312. SYNTHESIS OF MECHANICAL ENGINEERING SYSTEMS** (3-0) 3 hours credit — Mechanical, hydraulic, thermal, and electromechanical systems are designed or synthesized and advanced methods of analysis are used in determining and improving performance. Prerequisite: ME 4310 or permission.

**4313. FLUID MECHANICS II** (3-0) 3 hours credit — A continuation of ME 3313, consisting of a study of boundary-layer flows, inviscid incompressible flow, compressible flow, turbomachinery, and open-channel flow. Prerequisite: ME 3313.



## **MECHANICAL ENGINEERING**

- 4314. MECHANICAL VIBRATIONS (3-0)** 3 hours credit — Harmonic and periodic motion including both damped and undamped free and forced vibration. Single- and multidegree-of-freedom systems. Methods of solution including the Holzer and Rayleigh methods. Matrix techniques suitable for digital computer solution. Prerequisites: MATH 3318 and AE 3323 or 2324. May be taken as AE 4331, but credit will be granted only once.
- 4315. RANDOM PROCESSES IN DESIGN AND CONTROL (3-0)** 3 hours credit — Mechanical engineering systems designed utilizing techniques from probability and statistics theory. Analysis techniques for dynamic systems subjected to random inputs, including problems in random vibrations. Prerequisites: ME 3316 and 3342.
- 4316. ENGINEERING ANALYSIS (3-0)** 3 hours credit — Practical examples and problems taken from many fields of engineering emphasizing physical concepts, use of assumptions, procedures in setting up equations, and the physical interpretation of the mathematical results. Prerequisites: MATH 2326 and 3318 and senior standing in engineering.
- 4320. HYDRAULIC AND PNEUMATIC SYSTEMS (3-0)** 3 hours credit — The fundamentals of fluid mechanics as applied to hydraulic and pneumatic hardware. Mathematical models of pumps, motors, pistons, accumulators, valves, and transmission lines. Design and analysis procedures for implementing total fluid power systems with high operating efficiencies and adequate dynamic response characteristics. Theory is supported by laboratory demonstrations. Prerequisite: ME 4310 and 3313 (or permission of instructor).
- 4321. AIR-BREATHING ENGINE PROPULSION (3-0)** 3 hours credit — The first course of a two-semester sequence for students interested in aerospace propulsion. Ramjets, turbojets, and other air-breathing engines and their components. Prerequisites: ME 3302, 3312, 3313, 4313 or AE 3406 and MATH 3318. This course may be taken as AE 4321, but credit will be granted only once.
- 4322. ROCKET PROPULSION (3-0)** 3 hours credit — Chemical, electrical, and nuclear rockets. Prerequisite: ME 4321 or AE 4321. This course may be taken as AE 4322, but credit will be granted only once.
- 4323. ENERGY CONVERSION I (3-0)** 3 hours credit — Thermodynamics as applied to thermo-mechanical systems such as power cycles, engines, turbines, refrigeration, and air-conditioning systems. Prerequisites: ME 3302, 3312, and 3313.
- 4324. ENERGY CONVERSION II (3-0)** 3 hours credit — Direct thermal-electrical, nuclear-thermal, and electro-mechanical energy conversion. Prerequisite: ME 3302 and 3312.
- 4326. NUCLEAR POWER ENGINEERING (3-0)** 3 hours credit — Nuclear and thermonuclear power reactors and their engineering application. Prerequisite: ME 3311 and 3312.
- 4327. HEATING, VENTILATION, AND AIR CONDITIONING (3-0)** 3 hours credit — Application of engineering sciences to the design of HVAC systems. Includes humidification and dehumidification, psychrometric charts, heat load, cooling load, degree-days, comfort zones, and air distribution systems. Prerequisites: ME 3311 and 3313 or consent of instructor.
- 4328. INTRODUCTION TO NUCLEAR ENGINEERING (3-0)** 3 hours credit — Fundamentals of nuclear science including the theory of the fission process, neutron interactions, atomic model, and theory of the nucleus as applied to nuclear reactors. Prerequisite: ME 3302 or permission of instructor.
- 4331. DESIGN FOR MANUFACTURING (3-0)** 3 hours credit — Manufacturing methods and operations. The interaction between design and manufacturing stressed in terms of drawing specifications versus process capability and tolerances, including standards applications and redesign for producibility. Prerequisites: ME 2301, 2321, and 3342.
- 4332. OPTIMUM MECHANICAL DESIGN (3-0)** 3 hours credit — Mathematical approximations, manufacturing errors, and factor of safety. A method of optimum design is formulated and applied to a number of mechanical elements. Prerequisite: ME 3342.
- 4333. PROBABILISTIC DESIGN (3-0)** 3 hours credit — Probability theory is introduced and used to modify classical design methods. Examples of probabilistic design including mechanical, electro-mechanical, and structural members. Prerequisite: ME 3342.
- 4334. MACHINE NOISE REDUCTION (3-0)** 3 hours credit — Methods of analyzing, measuring, and controlling noise associated with machine operation. Emphasis on the isolation and reduction of noise. Prerequisites: MATH 3318 and AE 2324 or 3323.
- 4337. PHYSICAL METALLURGY (3-0)** 3 hours credit — The scientific background to the properties of metals and alloys with special problems in physical metallurgy. Prerequisite: ME 3345.
- 4342. ENGINEERING DESIGN II (3-0)** 3 hours credit — A continuation of Design I. Emphasis on the design of mechanical elements and system synthesis. Prerequisites: ME 3318 and 3342. Concurrent: ME 4184.
- 4343. DESIGN PROJECTS (2-3)** 3 hours credit — Students apply technical knowledge from several disciplines and stress creative efforts to solve practical design problems. Emphasis on problem definition, planning, solution, and documentation. May be repeated for credit. Prerequisite: permission of the instructor.
- 4390. SPECIAL TOPICS IN MECHANICAL ENGINEERING (3-0)** 3 hours credit — Special topics pertinent to the field of mechanical engineering will vary from semester to semester depending on the availability of faculty. May be repeated provided that topics are different. Prerequisite: prior approval by the student's advisor.



## OTHER ENGINEERING SUBJECT AREAS

Courses are offered in several other areas of engineering at either the undergraduate or graduate level, but no undergraduate degrees are offered in these areas. These areas are described in the following sections and in the graduate catalog.

### BIOMEDICAL ENGINEERING (BME)

*Section Chairman: Professor Potvin*

*Professor Lou*

*Assistant Professor Kondraske, Tencer, Von Maltzahn*

*Adjunct Associate Professors Allison, Eberhart, Finney, Reitman, Scacci, Stokely*

Undergraduate degree emphasis areas have been developed for students in aerospace engineering, biology, civil engineering, electrical engineering, industrial engineering, mathematics, mechanical engineering, and psychology to develop fundamental knowledge in the field of biomedical engineering. With the permission of the department's undergraduate advisor, a student may

## ENGINEERING

enroll in a series of courses and obtain an emphasis in biomedical engineering. Ordinarily, the student will take these courses as technical electives, free electives, and science electives. Thus, the Biomedical Engineering Option Program can be taken without adding significantly to the time needed to obtain a degree. The purpose of the program is to permit students to enter most graduate biomedical engineering programs without deficiencies and also to expose students to an emerging branch of engineering which employs graduates at the bachelor degree level. The program does not meet the entrance requirements of most medical or dental schools and is restricted to students having an overall grade point average of at least 2.75. Students should contact the graduate advisor of the Biomedical Engineering Program for additional information.

Elective courses for students who wish to obtain an emphasis in biomedical engineering:

BIOL 2455, Human Anatomy and Physiology

CHEM 2181, 2321 and 2182, 2322; or 3450, Organic Chemistry

CHEM 4311 and 4312; or 3305, Biochemistry

BME 4325, Biomedical Engineering and two elective courses from the list below.

Recommended lists of courses for non-engineering majors are available from the program graduate advisor.

**4195, 4295, 4395. SELECTED TOPICS** (Variable credit from 1 to 3 hours as arranged) — Material covered may vary from semester to semester, and course may be repeated for credit if different topics are covered for each registration. Selected topics include seminars or lectures on specific areas of current interest in the field of biomedical engineering. Prerequisite: consent of instructor.

**4305. BIOINSTRUMENTATION** (3-0) 3 hours credit — Transducers, signal processing systems, and output displays studied for a wide variety of biomedical applications. Physiology relevant to bioinstruments; interactions between living tissue and physical devices. Prerequisites: junior or senior standing in engineering or science.

**4315. PHYSIOLOGICAL SYSTEMS ANALYSIS AND MODELING** (3-0) 3 hours credit — Methods of analyzing physiological systems introduced and used to develop simple models of some of the major body systems and organs. Effects of changes in model parameters analyzed. Prerequisite: MATH 3318.

**4320. MEDICAL INSTRUMENTATION FOR NURSES** (1-6) 3 hours credit — Theory of operation and underlying principles of clinical devices used in intensive and critical care units. Topics include: amplifiers; oscilloscopes; generators; voltage, current, force, velocity, and wavelength measurements; EKG, EMG, EEG; fluid filled catheter manometer; invasive and noninvasive monitoring; electrical and mechanical hazards; safety tests and standards.

**4325. BIOMEDICAL ENGINEERING** (3-0) 3 hours credit — Major physiological systems. More than 10 biomedical engineering lecturers illustrate the application of engineering concepts and techniques to understand, define, and solve problems in biology and medicine. Prerequisite: junior or senior standing in engineering or science.

**4335. HUMAN INFORMATION PROCESSING** (3-0) 3 hours credit — Properties of action potentials and neural organization. Neural modeling and engineering analysis of the neuromuscular, visual, auditory and vestibular systems. Prerequisite: junior or senior standing in engineering or science.

**4345. DESIGN OF PROSTHESES** (3-0) 3 hours credit — Motions of the musculo-skeletal system. Methods of attachment and motive power sources. Prerequisite: AE 2324 or AE 3323.

## PRE-MEDICAL AND PRE-DENTAL

Undergraduate degree emphasis areas have been developed for students in aerospace engineering, biology, civil engineering, electrical engineering, industrial engineering, mathematics, mechanical engineering, and psychology to develop fundamental knowledge in the field of biomedical engineering. With the permission of the department's undergraduate advisor, a student may enroll in a series of courses and obtain an emphasis in biomedical engineering. Ordinarily, the student will take these courses as technical electives, free electives, and science electives. Thus, the Biomedical Engineering Option Program can be taken without adding significantly to the time needed to obtain a degree. The purpose of the program is to permit students to enter most graduate biomedical engineering programs without deficiencies and also to expose students to an emerging branch of engineering which employs graduates at the bachelor degree level. The program does not meet the entrance requirements of most medical or dental schools and is restricted to students having an overall grade point average of at least 2.75. Students should contact the graduate advisor of the Biomedical Engineering Program for additional information.

Required Courses:

BIOL 1447, 1448, General Biology

CHEM 2181, 2321, 2182, 2322, Organic Chemistry

BIOL 2451, 2452, 3312, 3315, 3353, 3443 (select at least two)



**DESIGN GRAPHICS SECTION (DG)***Professor Grubb**Associate Professor Crenshaw**Assistant Professor Echart*

**Design graphics courses are administered through a section of the Department of Civil Engineering.**

**1241. BASIC ENGINEERING GRAPHICS** (1-3) 2 hours credit — Introduction to graphics in engineering. Techniques of freehand lettering and instrumental representation, including orthographic projection and pictorial drawing, size description. Students majoring in engineering with less than one year of high school graphics will be required to take this course, without credit toward a degree, prerequisite to taking DG 1242.

**\*1242. INTRODUCTION TO GRAPHICAL DESIGN** (1-3) 2 hours credit — Introduction to the basic concepts of design, structured to introduce students to engineering communications. Emphasis on the use of the graphical process to originate ideas as well as present them in engineering form. Prerequisite: one year of high school graphics or equivalent. **\$2 lab fee.**

**\*1243. DESCRIPTIVE GEOMETRY** (1-3) 2 hours credit — The graphic solutions of space problems including material on orthographic projection, fundamental auxiliary views with special application, point line and plane problems, revolution, curved lines and surfaces, and intersection of surfaces. Prerequisite: credit for or concurrent enrollment in DG 1242.

**3301. VISUAL COMMUNICATION** (2-2) 3 hours credit — Introduction to the design and development of visual aids for oral presentations and technical publications. Techniques in the use of graphic aids and devices. Survey of the photographic and reproduction processes. Prerequisite: permission of instructor. **\$2 lab fee.**

**\*May be taken concurrently.**

**ENGINEERING MECHANICS (EM)**

A group of fundamental service courses, several of which are common to all engineering curricula, is taught in the subject area of engineering mechanics. Listings of these courses are included under aerospace, civil, and mechanical engineering course descriptions.

**GENERAL ENGINEERING (GE)**

The following courses are administered through the Electrical Engineering Department.

**1101. GENERAL ENGINEERING** (1-0) 1 hour credit — To introduce the freshman engineering student to the general field of engineering, so that he/she will understand more clearly the different fields of specialization in the engineering profession.

**1300, 2300, 3300, 4300. SUPERVISED WORK EXPERIENCE** 3 hours credit — For cooperative education students; may be taken during the student's cooperative program employment period. Each student is required to submit a technical report based upon the student's work during the employment period. A faculty member will monitor the student's program of work and will supervise the preparation of the required report. Prerequisite: acceptance into and continuance in the cooperative education program. May be repeated for credit.

**MATERIALS SCIENCE (MATS)**

A group of fundamental service courses in materials science is offered in the Department of Electrical Engineering and the Department of Mechanical Engineering at the undergraduate level.



# The College of LIBERAL ARTS

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The College of Liberal Arts offers its students and all the students of the University an opportunity to broaden and deepen their understanding and appreciation of human experience and to develop a creative and constructive set of values in dealing with life-decisions. The pace of societal change demands that students be prepared to confront new problems, to evaluate new ideas and strategies consciously and conscientiously. To live richly and purposefully in an increasingly complex milieu calls for an integrated vision of self, society and the cosmos. Experience in the College is designed to help the student generate such a vision.

The College promotes this experience in the following ways: 1) helping the students develop basic competencies, the tools for analysis, appreciation and communication; for written and oral expression; for comprehension, interpretation, and analysis of textual material; for analytic reasoning and scientific method; and for appreciation of aesthetic experience; 2) helping the students prepare for professions or careers by offering specialized major program areas; 3) helping the students to understand and to evaluate critically their cultural milieu — the attitudes and ideas that shape institutions and strategies in contemporary society. The humane endeavor to bring order out of chaos, to motivate individuals toward the common good, to design and support the good life requires an awareness of the cultural matrices, past and present, which generate such efforts. The disciplinary units of the College provide appropriate perspectives on the individual, society, and the cosmos; the various disciplines taken together offer the student an experience of the range of data, issues, and methods that may be integrated in a comprehensive and contemporary vision of the human condition. The faculty of the College intends to prepare the students to contribute through service in the community and the nation to the betterment of their lives and the lives of others.

## PROGRAMS

The College of Liberal Arts, in order to realize these objectives, offers programs of studies in fourteen academic units. Ten of these units offer majors leading to bachelor's degrees: *art, communication, English, foreign languages, history, music, philosophy, physical education, political science, and sociology*. The Center for Professional Teacher Education, in cooperation with the College of Liberal Arts, offers programs leading to all-level and secondary certification. Students may elect a double major in elementary education and approved disciplines. *Military science* offers a program that leads to a commission in the U.S. Army. Accredited courses in *religion* are offered in the off-campus church and denominational centers. The Center for Soviet and East European Studies, the Asian Studies Committee, and the Latin American Studies Committee coordinate area studies programs.

## HONORS PROGRAM

The Honors Program offers aware and motivated students a unique and complete college experience. It is designed to challenge the more ambitious student and to help him/her explore new dimensions of learning in a community of scholars. Qualified entering students, freshman or transfer, and students already in course may apply for admission. The Honors Program includes:

- Special honors sections of required courses with limited enrollment and innovative course content and methodology;

- Multidisciplinary, team-taught sections (Alpha Seminar) on relevant topics with professional panels and small-group discussion;

- Departmental honors courses with tutorials or independent study projects;

- Multidisciplinary colloquia (Omega Colloquium) for upper-classmen designed to integrate disciplinary and general learning;

- Honors research essay or project under the direction of selected faculty.

Students who complete the program successfully will receive a special citation on their diplomas. Inquiries about candidacy for the Honors Program should be directed to Director of the Honors Program.

## **LIBERAL ARTS**

### **LIBERAL ARTS MAJOR/BUSINESS ADMINISTRATION MINOR**

It is possible for a student to combine an undergraduate major in a liberal arts discipline (communication, English, foreign languages, history, philosophy, physical education, political science) with a minor in business administration. Depending upon the student's major area and interests, and provided prerequisites have been fulfilled, any 18 hours, six of which must be advanced, may be selected from the College of Business Administration.

Liberal Arts majors planning to pursue a Master of Business Administration degree are advised to select a minor (18-24 semester hours) from the following courses: ACCT 2301, 2302, BUSA 2301, 2303, 3321, MANA 3319, MASI 3306, FINA 3313, MARK 3321, and ECON 2305, 2306. In addition, MATH 1315 and 1316 are recommended to fulfill the mathematics requirement.

Completion of the above courses will allow the student, subject to normal graduate admission requirements, to reduce the foundation MBA program requirements. A student not completing all of the courses identified above will be required to enroll in the appropriate MBA foundation courses. All students minoring in business administration who may wish to pursue the MBA degree should consult with an undergraduate advisor in the College of Business Administration.

### **UNDECIDED LIBERAL ARTS MAJOR**

Entering freshmen who plan eventually to major in one of the liberal arts degree programs but who have not decided on a specific major at the time of enrollment should, at registrations the first year, declare an "Undecided Liberal Arts Major" and choose a maximum of 16 hours per semester plus physical education, ROTC, or marching band (in Fall Semester) from among the following courses:

ENGL 1301 and 1302

POLS 2311 and 2312

Foreign Language 1441 and 1442

Science: six hours in one science with lab (prospective majors in physical education or music should consult the science requirements of those departments elsewhere in this catalog)

HIST 1311 and 1312

MATH 1306 and 1307

(prospective majors in sociology should consult the math requirements of that department elsewhere in this catalog)

The Office of the Dean of Liberal Arts will serve to advise all undecided liberal arts majors. At the beginning of the sophomore year a student is encouraged to declare a specific major and be assigned an advisor in his/her major department.

### **DOUBLE MAJORS**

Students in the College of Liberal Arts may obtain a double major by completing all requirements for a degree in any one of the liberal arts disciplines plus the major area requirements in any other discipline. Requirements in the second major will fulfill the minor requirement. The diploma and transcript will reflect both majors.

### **MANDATORY ADVISEMENT**

The College of Liberal Arts has a system of mandatory advisement for all its students. Sometime prior to registration each semester, every liberal arts student must meet with his/her advisor and obtain a signed Advisement Form to be presented for admission to registration. The Advisement Form reflects the concern of the College of Liberal Arts in a quality educational experience for each of its students.

### **PASS-FAIL**

Any student majoring in the College of Liberal Arts may, with the permission of an advisor from his/her major department, take any course on a pass-fail basis, provided that the course is not required for the student's degree and provided the student has sophomore standing (30 hours credit). Students seeking teacher certification may not take education courses on a pass-fail basis with the exception of student teaching which is offered only on a pass-fail basis. Junior-senior level military science courses also may not be taken on a pass-fail basis.

# The Department of ART

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A distinguishing feature of the program in art is its concern to encourage insight and interchange across the natural frontiers between theory and practice and between two-dimensional and three-dimensional thought and expression. Both course content and the requirements for majors are intended to reflect this goal.

The art curriculum offers to the student a program of study in art beyond the core courses required of all majors. In addition to this 33-semester hour core, the student must complete at least 33, but no more than 42, hours in art. The art major may choose to specialize by concentrating in one of the following areas: art education, art history, ceramics, fashion illustration, fiber, filmmaking, graphic communication, illustration, metalsmithing, painting, photography, printmaking, or sculpture, or the student may elect to be a generalist by selecting no more than nine hours in any one of the above mentioned areas of the department. A degree of Bachelor of Fine Arts is awarded upon successful completion of all requirements.

Students who expect to graduate with the Bachelor of Fine Arts degree may qualify for secondary or all-level teacher certification by including in their program the required art education courses and completing the required 18 hours in professional education which includes student teaching.

To insure adequate preparation for, and direction in, advanced work, art majors will be subject to review and approval for continuation at three points: (1) at the end of the sophomore year (or on completion of the art core), (2) at the end of the junior year (or on completion of half the art courses required beyond the core), and (3) prior to a required exhibition or public presentation of the student's work in the final semester. Approval at these points and a satisfactory exhibition or presentation of work are required for graduation.

In all cases, art majors, and especially transfer students, should consult with a departmental advisor well in advance of their first registration, and then frequently during the course of their studies, to insure that the requirements can be met within four years.

## REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN ART HISTORY

Students seeking the B.A. degree in art history must complete all of the requirements established by the College of Liberal Arts for the B.A. degree. In addition to a minimum of 27 hours of art history (including the nine-hour survey), 12 hours of studio art are required. For those electing to minor in studio art, these 12 hours may apply to the 18-hour minor requirement. In choosing a minor, students should also consider such related fields as history, philosophy, anthropology, foreign languages, and English.

<b>English:</b>	1301, 1302, and six hours of literature.
<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent and 2314.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Mathematics:</b>	Six hours.
<b>Science:</b>	12 hours of science, six of which must be in one science with laboratory.
<b>Electives:</b>	Sufficient to complete the total number of hours required for the degree.
<b>Major:</b>	A minimum of 18 hours of art history beyond the nine-hour survey (1309, 1310, 2311) and 12 hours of studio art.
<b>Minor:</b>	18 hours, at least six of which must be advanced.
<b>Total:</b>	128 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

### ***Suggested Course Sequence:***

#### **FRESHMAN YEAR**

**First Semester:** ART 1309; Studio Art, 3 hours; ENGL 1301; FORL 1441; Mathematics, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 17 hours.

**Second Semester:** ART 1310; Studio Art, 3 hours; ENGL 1302; FORL 1442; Mathematics, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 17 hours.

## ART

### SOPHOMORE YEAR

**First Semester:** ART 2311; Studio Art, 3 hours; English (2000 literature course), 3 hours; FORL 2313; Science, 3 or 4 hours; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 hours.

**Second Semester:** Art History (advanced), 6 hours; English (2000 literature course), 3 hours; FORL 2314; Science, 3 or 4 hours; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 hours.

### JUNIOR YEAR

**First Semester:** Art History (advanced), 3 hours; Science, 3 hours; HIST 1311; POLS 2311; Minor, 3 hours; Elective, 3 hours — Total Credit 18 hours.

**Second Semester:** Art History (advanced), 3 hours; Science, 3 hours; HIST 1312; POLS 2312; Minor, 3 hours; Elective, 3 hours — Total Credit 18 hours.

### SENIOR YEAR

**First Semester:** Art History (advanced), 3 hours; Art Studio, 3 hours; Minor, 6 hours; Elective, 3 hours — Total Credit 15 hours.

**Second Semester:** Art History (advanced), 3 hours; Minor, 6 hours; Elective, 6 hours — Total Credit 15 hours.

### REQUIREMENTS FOR A BACHELOR OF FINE ARTS DEGREE IN ART

- English:** 1301, 1302, and six hours of literature.
- Foreign Language:** 1441 or equivalent and 1442.
- Political Science:** 2311, 2312.
- History:** 1311, 1312.
- Science:** Six hours with laboratory in one science.
- Mathematics:** Six hours.
- Electives:** Nine hours outside the major department.
- Major:**
- Core:** 33 hours including 1309, 1310, 1345, 1346, 1347, 1348, 2311, 2345, 2346, *plus* three hours of two-dimensional study to be selected from 2354, 2361, 2371, 3343, 3346, 3349, 3351, 3357, 3359, and three hours of three-dimensional study to be selected from 3341, 3353, 3363, 3367.
- Concentration:** 33 hours within the field of art as recommended by major advisor to include nine hours of advanced art history: one course in Ancient to Medieval (Group I), one course in Renaissance to Modern (Group II), and one course in the 20th Century (Group III), and 24 hours in the student's area of concentration.  
Group I: 3301, 3302, 3305, 3306, 3318, 4302, 4303, 4304.  
Group II: 3307, 3308, 3309, 3312, 3313, 3323, 3324, 3327, 4306.  
Group III: 3310, 3311, 3314, 3391, 4301, 4310.
- (with teacher certification):** *Secondary Certification* requires 2377 plus 12 hours elected from 3322, 3375, 3376, 3377 as part of the student's 24-hour concentration. *All-Level Certification* requires 2377, 3335, 3336, plus six hours elected from 3322, 3375, 3376, 3377 as part of the student's 24-hour concentration.
- Other Electives:** Sufficient to give the total number of hours required for a degree. A maximum of 75 hours in art may be counted toward a degree.
- Total:** 128 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

**Suggested Course Sequence:****FRESHMAN YEAR**

**First Semester:** ART 1309, ART 1345; ART 1347; ENGL 1301; FORL 1441; Physical Education or Military Science or Marching Band — Total Credit 17 hours.

**Second Semester:** ART 1310; ART 1346; ART 1348; ENGL 1302; FORL 1442; Physical Education or Military Science — Total Credit 17 hours.

**SOPHOMORE YEAR**

**First Semester:** ART 2311; ART 2345; 3 hours of two-dimensional study (to be selected from ART 2354, 2361, 2371, 3343, 3346, 3349, 3351, 3357, or 3359); Mathematics, 3 hours; English (2000 literature course), 3 hours; Physical Education or Military Science or Marching Band — Total Credit 16 hours.

**Second Semester:** ART 2346; 3 hours of three-dimensional study (to be selected from ART 3341, 3353, 3363, or 3367); Mathematics, 3 hours; English (2000 type design, harmony and legibility; copy-fitting and 3 hours; Physical Education or Military Science — Total Credit 16 hours.

**JUNIOR YEAR**

**First Semester:** Art History (advanced), 3 hours; Art Concentration, 6 hours; POLS 2311; HIST 1311; Science, 3 hours — Total Credit 18 hours.

**Second Semester:** Art History (advanced), 3 hours; Art Concentration, 6 hours; POLS 2312; HIST 1312; Science, 3 hours — Total Credit 18 hours.

**SENIOR YEAR**

**First Semester:** Art History (advanced), 3 hours; Art Concentration, 6 hours; Elective, 3 hours; Elective (outside department), 3 hours — Total Credit 15 hours.

**Second Semester:** Art Concentration, 6 hours; Electives, 6 hours; Elective (outside department), 3 hours — Total Credit 15 hours.

**ART (ART)**

*Chairman: Professor Bruno*

*Professors Merrill, Turner*

*Associate Professors Anderson, Dyer, Henderson, Keens, Plummer, Rascoe, Rubin, Scott, Shaffer, Spurlock, Stegall, Wood*

*Assistant Professors Arday, Grigg, Haire, Maroney, Travis*

**ART STUDIO**

**1345. TWO-DIMENSIONAL DESIGN (2-4)** 3 hours credit — Elements basic to all two-dimensional plastic expression: line, value, color, shape and texture, spatial devices and form. Techniques of paint media are explored in solving design problems in above areas. **\$2 lab fee.**

**1346. THREE-DIMENSIONAL DESIGN (2-4)** 3 hours credit — The formal elements and concepts of form and structure: mass, volume, plane, line, texture, color. **\$2 lab fee.**

**1347. DRAWING (2-4)** 3 hours credit — Orientation to drawing in varied media with disciplined study of composition, perspective, line, tone, modeling, and figure construction. **\$2 lab fee.**

**1348. INTERMEDIATE DRAWING (2-4)** 3 hours credit — Further study of drawing as graphic environmental concepts. Prerequisite: ART 1347. **\$2 lab fee.**

**2345. FORM AND SPACE I (2-4)** 3 hours credit — Methods of visual reasoning as applied to the structure of works whose means are primarily two dimensional with illusionistic intentions. A variety of media with emphasis upon paint and color. Previously taught as ART 2346. Prerequisite: ART 1346. **\$2 lab fee.**

**2346. FORM AND SPACE II (2-4)** 3 hours credit — Plastic qualities of three-dimensional form with development of aesthetic structures in a variety of methods and materials. Previously taught as ART 2345. Prerequisite: ART 1346. **\$2 lab fee.**

**2354. GRAPHIC COMMUNICATION I (2-4)** 3 hours credit — Letter forms and typography as elements of graphic communication applied to problem solving situations. Prerequisites: ART 1346 and 1348. **\$2 lab fee.**

**2355. GRAPHIC COMMUNICATION II (2-4)** 3 hours credit — Development and application of layout, concept, and media related to graphic communication. Prerequisite: ART 2354. **\$2 lab fee.**

**2361. FASHION ILLUSTRATION (2-4)** 3 hours credit — The illustration of men's, women's, and children's fashions in relation to newspaper and magazine layouts. **\$2 lab fee.**

**2371. PAINTING (2-4)** 3 hours credit — Materials and techniques of various painting media. Prerequisites: ART 1346 and 1348. **\$2 lab fee.**

**3341. SCULPTURE (2-4)** 3 hours credit — Search for form and personal expression through varied media with emphasis on design and individual instruction. Prerequisite: ART 1346. **\$2 lab fee.**

## ART

- 3343. PRINTMAKING** (2-4) 3 hours credit — An introduction to the philosophy, theory, and practice involved in printmaking. Techniques include lithography, intaglio, relief, and silk screen. Prerequisites: ART 1346 and 1348. **\$2 lab fee.**
- 3346. PAPERMAKING** (2-4) 3 hours credit — An exploratory course in the methods and techniques of making handmade paper for two- and three-dimensional products. **\$2 lab fee.**
- 3347. ADVANCED DRAWING** (2-4) 3 hours credit — Drawing of the human figure using a number of media in the solution of figure construction problems, with an emphasis on perceptual and creative vision in drawing all subject matter. Prerequisite: ART 1348. May be repeated for up to 12 hours credit as course content and emphasis may vary. **\$2 lab fee.**
- 3349. WATER MEDIA PAINTING** (2-4) 3 hours credit — Transparent and opaque water color media and techniques. Emphasis on conceptual and manipulative skills. May be repeated for up to 6 hours credit as course content and emphasis may vary. **\$2 lab fee.**
- 3351. ILLUSTRATION** (2-4) 3 hours credit — Illustration as used in the communication arts. The history, mechanics, techniques and concepts of illustration with practical application in problem-solving situations. Prerequisite: ART 2355. **\$2 lab fee.**
- 3353. METALSMITHING: JEWELRY** (2-4) 3 hours credit — Contemporary metal working techniques and concepts, including the construction of small metal forms, alone and combined with other media. Emphasis on learning basic manipulation techniques. Prerequisites: ART 1345 and 1346. **\$2 lab fee.**
- 3355. GRAPHIC COMMUNICATION III** (2-4) 3 hours credit — The mechanical processes used in graphic communication and practical application of those processes. Prerequisite: ART 2355. **\$2 lab fee.**
- 3357. FILM PRODUCTION** (2-4) 3 hours credit — Basic cinematic techniques and theory for application to the construction of a personal film (dramatic, documentary, narrative, manual, or animation). Equipment available **\$2 lab fee.**
- 3358. INTERMEDIATE FILM PRODUCTION** (2-4) 3 hours credit — A continuation in the film series. Super-8 production; sync-sound-effects, AB rolling, advanced camera and lighting techniques. Students may elect to work in animation, narrative, or experimental film. Students must produce up to a five-minute, sync-sound-effect film. Equipment supplied; student must supply all expendables. **\$2 lab fee.**
- 3359. PHOTOGRAPHY** (2-4) 3 hours credit — Introduction of photography as a means of personal creative expression. Emphasis on the development of an aesthetic awareness towards photography. Techniques include the manipulation of basic B & W photographic materials. **\$2 lab fee.**
- 3360. INTERMEDIATE PHOTOGRAPHY** (2-4) 3 hours credit — An extension of principles taught in ART 3359. Techniques include the zone system, manipulative printing, hand coloring, archival processing, bookmaking, and B & W slide making. Prerequisite: ART 3359. **\$2 lab fee.**
- 3363. CLAY** (2-4) 3 hours credit — An introduction to the various methods of construction, manipulation, and decoration of clay. The integration of form, design, and concept, emphasizing clay as an expressive medium. Prerequisite: ART 1346 or consent of the instructor. **\$2 lab fee.**
- 3367. WEAVING** (2-4) 3 hours credit — The processes, vocabulary and methods of traditional and contemporary weaving. **\$2 lab fee.**
- 3371. INTERMEDIATE PAINTING** (2-4) 3 hours credit — Composition and technique with growing emphasis on the painting aesthetic. Prerequisite: ART 2371. **\$2 lab fee.**
- 3380. DRAWING ANALYSIS** (2-4) 3 hours credit — Visual ideas of space and composition in a wide range of drawings and paintings; both faculty and student participation and discussion. Prerequisite: junior standing. **\$2 lab fee.**
- 4342. ADVANCED SCULPTURE** (2-4) 3 hours credit — A continuation of ART 3341. Emphasis to achieve clarity of form and content with specific needs of student creative level and technical knowledge at the rate which best serves personal growth. Prerequisites: ART 1346, 3341. May be repeated for up to 12 hours credit as course content and emphasis may vary. **\$2 lab fee.**
- 4343. ADVANCED CLAY** (2-4) 3 hours credit — A continuation of ART 3363 with emphasis on individual style and techniques in sculptural clay forms. Also the introduction of wheel formed clay and glazemaking. Prerequisite: ART 3363. May be repeated for up to 15 hours credit as course content and emphasis may vary. **\$2 lab fee.**
- 4344. PHOTO PRINTING PROCESSES** (2-4) 3 hours credit — An introduction to a variety of methods whereby the photographic image may be converted into a form which is applicable to the printmaking processes: blueprint, brownprint, transfers, silkscreen, intaglio, and lithography. May be repeated for up to six hours credit. Prerequisites: ART 3343, 3359, and 3360, or permission of the instructor. **\$2 lab fee.**
- 4345. ADVANCED PRINTMAKING** (2-4) 3 hours credit — Contemporary innovations, mixed techniques, and photo processes. Personal creativity and development stressed. May be repeated for up to 12 hours credit as course content and emphasis may vary. Prerequisite: ART 3343. **\$2 lab fee.**
- 4351. ADVANCED ILLUSTRATION** (2-4) 3 hours credit — A continuation of ART 3351 with emphasis on individual style and techniques as applied to the communication arts. Prerequisite: ART 3351. May be repeated for up to 12 hours credit as course content and emphasis may vary. **\$2 lab fee.**



**4353. ADVANCED METALSMITHING: JEWELRY (2-4)** 3 hours credit — A continuation of ART 3353, utilizing techniques learned for the designing and construction of more sophisticated metal forms. Problems designed to expose student to new metal-working experiences. May be repeated for up to 15 hours credit as course content and emphasis may vary. **\$2 lab fee.**

**4355. GRAPHIC COMMUNICATION IV (2-4)** 3 hours credit — Emphasis on the exploration and application of graphic design as used in the communication arts. Prerequisite: ART 3355. **\$2 lab fee.**

**4356. GRAPHIC COMMUNICATION V (2-4)** 3 hours credit — Further investigation and intensification of professional capabilities applied to Graphic Communication. Prerequisite: ART 4355. **\$2 lab fee.**

**4358. ADVANCED FILM PRODUCTION (2-4)** 3 hours credit — A continuation of the filmmaking series. May include narrative and non-narrative films at the students' discretion. Animation, Manual, Dramatic, Sound, 16mm sync, etc. Students may form production groups to work on a cooperative project with permission. Prerequisite: ART 3357, but may be waived by instructor. An exploration of the creative possibilities in film production. All equipment, both 16 and 8, is provided. May be repeated for up to 15 hours credit as course content and emphasis may vary. **\$2 lab fee.**

**4359. ADVANCED PHOTOGRAPHY (2-4)** 3 hours credit — Extension and application of principles taught in ART 3359 and 3360. Emphasis on the development of an individual philosophical stance toward photography as an expressive medium. Prerequisites: ART 3359, 3360. May be repeated for up to 9 hours credit with a change in course content. **\$2 lab fee.**

**4360. COLOR PHOTOGRAPHY (2-4)** 3 hours credit — The principles of ART 3359, 3360, and 4359 extended and applied to process color materials. The aesthetic and critical response which color photography has elicited. Development of an aesthetic sensibility toward photographic color. Technical information will include developing and printing of both positive and negative color materials. Prerequisites: ART 3359, 3360, and 4359, or permission of the instructor. **\$2 lab fee.**

**4361. ADVANCED FASHION ILLUSTRATION (2-4)** 3 hours credit — To develop in the student a degree of professionalism in the rendering of fashion and fashion-related merchandise for all media in a complete, ready-for-the-engraver form. May be repeated for up to 9 hours credit as course content and emphasis may vary. Prerequisite: ART 2361. **\$2 lab fee.**

**4368. ADVANCED WEAVING (2-4)** 3 hours credit — Sophisticated extensions of traditional weaving, non-traditional weaving and fiber forms. May be repeated for up to 9 hours credit as course content and emphasis may vary. **\$2 lab fee.**

**4371. ADVANCED PAINTING (2-4)** 3 hours credit — Further work in the fundamentals of painting, composition, and techniques, both traditional and contemporary. Students are encouraged to develop the style which best complements their development as visual thinkers. May be repeated for up to 12 hours credit as course content and emphasis may vary. **\$2 lab fee.**

**4391, 4291, 4191. INDEPENDENT STUDY (Variable credit as arranged)** — Mature, capable students may be permitted to pursue individual art problems. Problems must be stated in writing, approved by supervising faculty member, and definite conference schedule arranged prior to registration. May be repeated for credit for varied subject matter. Prerequisite: B average in art concentration. **\$2 lab fee.**

**4392. SPECIAL STUDIES (2-4)** 3 hours credit — Special coursework in new or experimental offerings for which there is immediate need and for which special resources are available. May be repeated for credit for varied subject matter. Primarily for art majors.

**4395, 4695. ART INTERNSHIP (3 or 6 hours credit as arranged)** — An opportunity to apply academic training as participant/observer in a professional organization relevant to a major area of concentration. With permission of advisor, internships may be repeated for up to a maximum of 9 hours credit. Internships must be arranged with the internship supervisor in the semester prior to enrolling for this course. Prerequisite: permission of the instructor.

## ART HISTORY

**1303. INTRODUCTION TO THE VISUAL ARTS (3-0)** 3 hours credit — The nature and functioning of art as an instrument of human understanding, the range of its means and meanings, the relationship of history and practice in art as man seeks to come to terms with his cultural and physical environment. Introductory course for non-majors.

**1309. ART OF THE WESTERN WORLD I: ANCIENT TO MEDIEVAL (3-0)** 3 hours credit — The first of a three semester study of the major monuments of western civilization, Prehistoric art, the art of Egypt and the Near East, Greece, Rome, Byzantium, and the Middle Ages of Western Europe.

**1310. ART OF THE WESTERN WORLD II: RENAISSANCE TO MODERN (3-0)** 3 hours credit — Continuation of ART 1309. The major monuments of western civilization from the Italian Renaissance of the 14th and 15th Centuries through the beginnings of the modern period in the 19th Century.

**2311. ART OF THE WESTERN WORLD III: THE TWENTIETH CENTURY (3-0)** 3 hours credit — Continuation of ART 1310. The study of the sources of contemporary art forms beginning in the 19th Century and concluding with the present day, focusing on a review of modern art expressions in painting, sculpture, architecture, photography and film.

## ART

- 3301. ANCIENT NEAR EAST** (3-0) 3 hours credit — The emergence of Paleolithic art and its subsequent development in Egypt and the Fertile Crescent. Emphasis upon art historical problems primarily in the area of archaeology.
- 3302. GREEK ART** (3-0) 3 hours credit — The origins and evolution of the classical Greek style in painting, sculpture, and architecture from Minoan and Mycenaean times to Alexander the Great and the world of Hellenism. The course will concentrate on the monuments of the high classical period in the age of Pericles, particularly the great sanctuaries of Olympia, Delphi, and the Akropolis of Athens.
- 3305. EARLY CHRISTIAN AND BYZANTINE** (3-0) 3 hours credit — The mingling of Mediterranean, Oriental, and Nomadic traditions under the stimulus of Christianity, with particular emphasis on the liturgical arts, manuscript illumination, mosaics, and church building.
- 3306. THE HIGH MIDDLE AGES** (3-0) 3 hours credit — The re-emergence of monumentality in art and architecture in the West from the age of the Ottonian emperors, beginning in the 10th Century through the great Gothic cathedrals of the 13th Century.
- 3307. THE EARLY RENAISSANCE** (3-0) 3 hours credit — Developments in painting, sculpture, and architecture in Italy in the 13th and 14th Centuries focused on the emergence of Cimabue, Giotto, and Duccio as dominant artistic personalities.
- 3308. HIGH RENAISSANCE** (3-0) 3 hours credit — The basis, nature and consequences of the climactic achievements of Leonardo, Michelangelo, and Raphael, with attention to the Venetian tradition.
- 3309. NORTHERN RENAISSANCE** (3-0) 3 hours credit — The painting of Northern Europe from the 14th Century through the Reformation. This course covers the great Dutch and Flemish Renaissance painters such as the van Eyck brothers, van der Weyden, Bosch and Memling, and carries the history of Northern painting into the 16th Century with a study of the works of Bruegel and the German mannerist, Albrecht Durer.
- 3310. FILM AS ART** (3-0) 3 hours credit — The history and aesthetics of the motion picture from 1895 to the present day. Screening and analysis of film as an artistic medium, focusing on various technical innovations, filmmakers, and landmarks of film history.
- 3311. AMERICAN ART** (3-0) 3 hours credit — The role of art in the shaping of a national identity with emphasis on our beginnings and attention to vernacular and indigenous traditions.
- 3312. NEO-CLASSICISM AND ROMANTICISM** (3-0) 3 hours credit — European painting from 1760 to 1840, primarily in France.
- 3313. BACKGROUNDS OF MODERN ART** (3-0) 3 hours credit — Painting, sculpture, and photography of the period c. 1850-1900 in western Europe, focusing on Realism, Impressionism, Post-Impressionism and Symbolism (*fin de siècle*).
- 3314. MODERN ART** (3-0) 3 hours credit — The history of European and American art from 1900 to World War II (c. 1945).
- 3316. FASHION** (3-0) 3 hours credit — The development of haute couture and ready-to-wear fashion presentations in Europe and America. Influences by great designers, insight into consumer trends, and the development of the fashion idea to the finished product. Prerequisite: junior standing or consent of the instructor.
- 3318. PRE-COLUMBIAN** (3-0) 3 hours credit — Architecture, sculpture, pottery, and other arts before the Spanish conquest in Mexico, Central America, and the Andean Region.
- 3323. ITALIAN BAROQUE** (3-0) 3 hours credit — Painting, sculpture, and architecture in Italy in the later 16th and 17th Centuries.
- 3324. FLEMISH AND DUTCH BAROQUE** (3-0) 3 hours credit — Painting in the north in the divergent traditions of Rubens and Rembrandt.
- 3327. BAROQUE SPAIN** (3-0) 3 hours credit — The grand tradition of painting in Spain from El Greco through Goya.
- 3390. HONORS COLLOQUIUM** (3-0) 3 hours credit — An interdisciplinary course designed to meet the needs of advanced undergraduates in the Honors Program. Prerequisite: participation in the Honors Program and/or permission of instructor.
- 3391. PHOTO HISTORY** (3-0) 3 hours credit — A historical survey of still photography within such areas as commercial, technical, scientific, and especially fine art.
- 4301. CONTEMPORARY ART** (3-0) 3 hours credit — The background of and currents in the art of the period from 1945 to the present with emphasis on the mixed media. Prerequisite: ART 3314.
- 4302. GREEK PAINTING** (3-0) 3 hours credit — Painting in ancient Greece, in the Geometric, Orientalizing and Classical periods. The material covered includes the narrative art of vase painting as well as the extant examples of wall decoration in ancient tombs and houses.
- 4303. ROMAN ART** (3-0) 3 hours credit — The art of Rome from the early Republican period to the late empire. Topics include the development of portraiture as a characteristic aspect of Roman art, the history of Roman wall painting, and the development of the art of historical reliefs in monuments of the Roman empire.
- 4304. THE ETRUSCANS** (3-0) 3 hours credit — A survey of the art and culture of the Etruscan and neighboring peoples of pre-Roman Italy. Special emphasis on the stylistic characteristics of folk art in primitive Italy and its relation to the orientalizing and classical Greek styles that influenced Etruscan art from the 7th to the 4th Centuries BC.

**4306. MID-RENAISSANCE (3-0)** 3 hours credit — The pivotal contributions of Donatello, Brunelleschi, and Masaccio to the understanding of man's place in the world, in the light of the progress made toward assimilating those contributions in 15th-century Florence.

**4307. MUSEUM TECHNIQUES (2-4)** 3 hours credit — A seminar in the administration and programming of contemporary museums of art. Lectures in the history of the museum in Europe and America. Students enrolling in the seminar will participate in the preparation of exhibition catalogs and the design and installation of exhibitions in the University Gallery.

**4310. TOPICS IN FILM STUDY (3-0)** 3 hours credit — An in-depth study of topics such as historical surveys of non-fiction film, experimental cinema, and genres (e.g., the western, the gangster film, science-fiction films), as well as geographical or national movements (e.g., German expressionism, Italian neo-realism, French new wave) and film theory and criticism. The particular subject will change from year to year. Prerequisite: ART 3310 or consent of the instructor.

**4317. THE ART OF OTHER TRADITIONS (3-0)** 3 hours credit — A survey of work in various media developed in isolation from the European tradition, with particular emphasis on Black African and Oceanic art.

**4390. CONFERENCE COURSE: ART HISTORY (3-0)** 3 hours credit — Independent study or research in an area of art history agreed upon in advance with the instructor. Written permission and the determination of obligations and objectives are required before registration. May be repeated for credit when subject matters varies.

**4394. HONORS THESIS/SENIOR PROJECT (3-0)** 3 hours credit — Applied only to participants in the Liberal Arts Honors Program and fulfills the requirement that during the participant's senior year, the student must complete a thesis or a project of equivalent difficulty under the direction of a faculty member in the major department.

## ART EDUCATION

**2377. CONCEPTS IN ART EDUCATION (3-0)** 3 hours credit — Ideas and terminology in art education. An introductory course required of all art education majors.

**3321. SECONDARY ART EDUCATION CURRICULUM (3-0)** 3 hours credit — Introduction to curriculum development for Art Education, and experiences in curriculum planning. Prerequisite: ART 2377.

**3322. CURRENT PROBLEMS IN ART EDUCATION (3-0)** 3 hours credit — Seminar on social, psychological, and cultural concerns affecting art education. Selection and solution of individual problems. Prerequisite: ART 2377.

**3335. AESTHETIC EXPERIENCES IN THE ELEMENTARY SCHOOL (2-4)** 3 hours credit — A multi-sensory course relating art, music, drama, poetry, and movement to the elementary child's world of experience. A required course for all-level certification. Prerequisite: ART 2377. **\$2 lab fee.**

**3336. MEDIA AND METHODS FOR ART IN THE ELEMENTARY SCHOOL (2-4)** 3 hours credit — A survey of graphic and three-dimensional materials suitable for elementary level classrooms with emphasis upon methods to implement learning situations through media experiences. A required course for all-level certification. Prerequisite: ART 2377. **\$2 lab fee.**

**3375. PRINCIPLES OF ART EDUCATION (3-0)** 3 hours credit — Seminar directed toward discovery and development of fundamental attitudes and principles in secondary art education. Prerequisite: ART 2377.

**3376. GRAPHIC MEDIA AND METHODS (2-4)** 3 hours credit — Studio exposure to a variety of graphic media related to secondary art education, and exploration of the methodology involved. Prerequisite: ART 2377. **\$2 lab fee.**

**3377. THREE-DIMENSIONAL MEDIA FOR THE SECONDARY SCHOOLS (3-0)** 3 hours credit — Provides the prospective teacher with a variety of three-dimensional media and methods for presentation that is particularly suited to the secondary classroom situation.

**4320. DEVELOPMENTAL GROWTH IN ART (3-0)** 3 hours credit — Levels in art performance from age 18 months, through childhood, latency, and adolescence to young adulthood with emphasis on theories of relevant to developmental levels.

# The Department of COMMUNICATION

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The degree Bachelor of Arts in Communication is offered in the areas of drama, journalism, radio-television, and speech. The Bachelor of Fine Arts degree is offered in drama.

The Department curricula provide students with an overview of the role and function of communication in society. These courses present a broad academic exposure, including theories, skills, techniques, critical analysis, historical perspectives, and aesthetic appreciation.

The Department of Communication seeks to emphasize theories and techniques which give students ability to adapt to rapid changes in communication technology.

Within the major disciplines, concentrated sequences of specialized options are available in drama, advertising, news-editorial journalism, photojournalism, public relations, organizational communication, oral communication, radio-television performance, broadcast news and public affairs, radio-television production, and broadcast sales and management.

To fulfill the department's philosophy that certain content of communication studies is common to all areas, several core courses are offered. All students are required to take COMM 1300, Introduction to Communication, and two senior level courses with the COMM prefix. These senior courses will vary according to the option the student is following. A suggested plan of study for each option is available from the Department of Communication office.

## TEACHER CERTIFICATION

Department programs which provide for teacher certification are the following: secondary teaching level in drama, journalism, or speech; elementary teaching level in drama or speech; and certification at all levels in speech-drama. Descriptions of these programs can be found in the Center for Professional Teacher Education portion of the catalog.



**REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE  
IN COMMUNICATION**

<b>English:</b>	1301, 1302, and six hours of sophomore literature.
<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent, and 2314.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Mathematics:</b>	Six hours (1306, 1307 recommended)
<b>Science:</b>	12 hours of science, six of which must be in one science with laboratory.
<b>Electives:</b>	Sufficient to give the total number of hours required for a degree.
<b>Major:</b>	A minimum of 30 and a maximum of 36 semester hours in communication, 18 of which must be advanced. A student must complete the requirements for one of the options listed below.
<b>Minor:</b>	18 hours, six of which must be beyond the sophomore level, in any field selected with the advice of a counselor.
<b>Total:</b>	128 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

**Drama Option**

COMM 1300, COMM 4320, and another COMM 4000 level course.  
 Three hours of DRAM 0181.  
 DRAM 1306 or 1307.  
 DRAM 2304.  
 Nine additional hours at 3000-4000 level in DRAM courses.  
 Three to nine hours electives in the department.

**Journalism Options**

**Advertising**

COMM 1300, COMM 4310, and another COMM 4000 level course.  
 JOUR 1345, 2337, 3303, 3304, 3305, and 4301.  
 Three to nine hours electives in the department.

**News-Editorial Journalism**

COMM 1300, COMM 4310, and another COMM 4000 level course.  
 JOUR 1345, 2340, 2346, 3328, and 3345.  
 Three hours from JOUR 4326, 4327, 4378,  
 Three to nine hours electives in the department.

**Photojournalism**

COMM 1300, COMM 4310, and another COMM 4000 level course.  
 JOUR 1345, 2340, 2346, 3341, and 4380.  
 Three hours from JOUR 4326, 4327, 4378.  
 Three to nine hours electives in the department.

**Public Relations**

COMM 1300, COMM 4310, and another COMM 4000 level course.  
 JOUR 1345, 2338, 2346, 3339, 3345, and 4316.  
 Three to nine hours electives in the department.

## COMMUNICATION

### Speech Options

#### Organizational Communication

COMM 1300, COMM 4305, and another COMM 4000 level course.  
SPCH 1301, 2304, and 2305.

Six hours from SPCH 3306, 3309, 3310, 3316, 3320.

Three hours from SPCH 4300, 4315, 4320.

Three to nine hours electives in the department.

#### Oral Communication

COMM 1300, COMM 4315, and another COMM 4000 level course.  
SPCH 1301, 1302, 2303, 3312, and 3321.

Three hours from SPCH 4000 level.

Three to nine hours electives in the department.

### Radio and Television Options

#### Broadcast News and Public Affairs

COMM 1300, COMM 4310, and another COMM 4000 level course.  
RATV 1355, 2357, 2358, 3318, 3340 and 4340.

RATV 3341 or 3350.

Three to nine hours electives in the department.

#### Broadcast Sales and Management

COMM 1300, COMM 4310, and another COMM 4000 level course.  
RATV 2357, 2358, 3318, 3319, 4320, and 4392.

Three to nine hours electives in the department.

#### Radio-Television Performance

COMM 1300, COMM 4310, and another COMM 4000 level course.  
RATV 1355, 2357, 2358, 3355, 3356, and 4340.

Three to nine hours electives in the department.

#### Radio-Television Production

COMM 1300, COMM 4310, and another COMM 4000 level course.  
RATV 2357, 2358, 3357, 3358, 4357, and 4358.

Three to nine hours electives in the department.



**REQUIREMENTS FOR A BACHELOR OF FINE ARTS DEGREE  
IN DRAMA**

<b>Art:</b>	1303 (or approved art or music elective).
<b>English:</b>	1301, 1302, and six hours of sophomore literature.
<b>Foreign Language:</b>	1441, 1442
<b>or</b>	
<b>Social Science:</b>	Six hours in sociology, psychology, philosophy, communication.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Mathematics:</b>	Six hours (1306, 1307 recommended).
<b>Science:</b>	Six or eight hours science with laboratory.
<b>Music:</b>	1300 (or approved art or music elective).
<b>Electives:</b>	18 hours approved electives to give total number of hours required for degree.
<b>Major:</b>	
<b>Option 1     (Performance)</b>	1302, 1307, 2304, 2306, 2343, 2352, plus 36 upper division hours including Drama 3315, 3322, 3330 or 3331, 3341, 3342, and three hours at the 4000 level. Eight semesters of Drama 0181. Majors are required to participate in at least one production at UTA each semester (either on stage or on crew).
<b>Option 2     (Production/     design)</b>	1302, 1305, 1306, 2304, 2306, 2343, plus 36 upper division hours including Drama 3301, 3305, 3342, 3343, 4302, 4305, 4306, 4307. Eight semesters of Drama 0181. Majors are required to participate in at least one production at UTA each semester.
<b>Total:</b>	128 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required. No more than 60 hours may be in drama, excluding 0181.

**COMMUNICATION**

*Chairman: Professor Arrendell*

*Associate Professors Cox, Gibson, Hamric, Proctor, Rhoades, Ross, Stanton, Stone*

*Assistant Professors Groner, Hickey, Ingram, Kaufman, Kongevick, Maher, McCallum, Ritter, Shuford*

*Instructor Pierce*

*Visiting Assistant Professors Field, Walker*

**COMMUNICATION (COMM)**

**1300. INTRODUCTION TO COMMUNICATION** (3-0) 3 hours credit — Application of communication theories and principles to human communication; from the oral tradition to theater, printing press, photography, electronic media, and information technology.

**4300. COMMUNICATION RESEARCH** (3-0) 3 hours credit — Introduction to communication research, design, and methodology. Readings and criticism in interpersonal, public address, and mass communication research; project required.

**4305. COMMUNICATION AND SOCIETY** (3-0) 3 hours credit — Readings and analysis of the role of communication in modern society; its impact on contemporary social, cultural, political, and intellectual trends.

**4310. COMMUNICATION LAW AND REGULATIONS** (3-0) 3 hours credit — Study of constitutional, statutory, and administrative regulations as applied to print media, broadcast media, advertising, and film; rights, responsibilities, and ethics.

**4315. COMMUNICATION THEORY** (3-0) 3 hours credit — Study of communication theories; interpersonal, organizational, mass media, and intercultural.

**4320. CRITICISM OF COMMUNICATION ARTS** (3-0) 3 hours credit — Comparative survey of critical and aesthetic theories as applied through the communication arts.

**4325. COMMUNICATION HISTORY** (3-0) 3 hours credit — Evolution and trends in forms of human communication; development of symbols and media technology with attention to their effects on society.

**4330. POLITICAL COMMUNICATION** (3-0) 3 hours credit — Communication theories, principles, and strategies in modern political campaigns and events.

## COMMUNICATION

**4335. INTERNATIONAL-INTERCULTURAL COMMUNICATION (3-0)** 3 hours credit — Cultural, ethnic, and cross-national differences in communication. National systems of communication are compared.

**4393. COMMUNICATION TOPICS (3-0)** 3 hours credit — Seminar in interdisciplinary topics. Prerequisite: upper division standing. May be repeated when topics vary.

## DRAMA (DRAM)

**0181. THEATRE PRACTICUM (0-4)** 1 hour credit — Open to all students interested in participating in dramatic productions. Includes all phases of play production: acting, stage diction, scenery construction, publicity, costumes, and lighting. All will participate in tryouts and be assigned to production crews. Field trips to area theatrical productions are available, but not compulsory. **\$2 lab fee.**

**0186. LABORATORY IN PRODUCTION OF MUSICAL THEATRE (0-4)** 1 hour credit — Open to all students interested in participation of productions of musical theatre. Includes all phases of program: crew work and performance. May be repeated four semesters. This course may not be substituted for DRAM 0181. **\$2 lab fee.**

**1302. VOICE AND DICTION (3-0)** 3 hours credit — Designed to improve the quality of the individual's speech. Enunciation, articulation, pronunciation and the fundamentals of voice production. The phonetic alphabet as a visual means of teaching auditory differences. Also listed as SPCH 1302. Credit will not be granted in both DRAM 1302 and SPCH 1302.

**1305. SCENIC ARTS (3-0)** 3 hours credit — Basic aesthetic skills of color, line, texture, and form; interactions of these elements in all visual communication.

**1306. DEVELOPING CREATIVE IMAGINATION (3-0)** 3 hours credit — Improvisation, sensory awareness, bodily control, and expression. The use of imagination and observation in developing vocal and bodily skills in creative drama activities.

**1307. INTRODUCTION TO ACTING (3-0)** 3 hours credit — Basic stage movement such as positions and groupings. Various techniques necessary for the actor in delineating a role. Pantomimic skills.

**2304. METHODS IN TECHNICAL PRODUCTION (2-4)** 3 hours credit — Equipment, materials, methods, and procedures for the fabrication of scenery and properties for theatrical production. Service on crews in departmental productions as required for one semester. Required of all drama majors.

**2306. THE CRAFT OF COSTUME (2-4)** 3 hours credit — The building of stage costumes: clothing, hats, shoes, armor, foundations, etc.

**2342. DRAMA APPRECIATION (3-0)** 3 hours credit — Designed to develop awareness of and appreciation for all forms of dramatic art as reflected in theater, television, and film. Provides opportunity to increase student's enjoyment and knowledge of drama and its historical, social, and cultural relationships. Not open to drama majors.

**2343. INTRODUCTION TO THEATRE ARTS (3-0)** 3 hours credit — Designed to acquaint the student with all phases of theatrical activity to develop greater understanding and appreciation for theatre. The duties and contributions of director, actor, scene designer, costumer, and others involved in play production.

**2352. ACTING II (2-4)** 3 hours credit — Acting technique exercises to enhance and develop acting skills. Methods of characterization, research, and role preparation. Both presentational and representational approaches. Prerequisite: permission of the instructor.

**3301. SCENE DESIGN I (3-0)** 3 hours credit — History, theory, and basic concepts of design methods with application for stage, television, and film.

**3305. LIGHTING DESIGN I (2-4)** 3 hours credit — Electrical control and distribution lighting equipment types and application, and basic design techniques and application of those principles to stage, television, and film. Service of light crews in departmental productions as required.

**3310. TEACHING CREATIVE DRAMA (2-4)** 3 hours credit — Techniques of teaching creative drama in the secondary and elementary school, or children's theatre program. Prerequisite: permission of the instructor.

**3312. THEATRE PRODUCTION FOR CHILDREN (2-4)** 3 hours credit — The practical problems of selecting, casting, directing and performing plays for children. Prerequisite: permission of the instructor.

**3315. MAKE-UP (3-0)** 3 hours credit — A study of basic types, styles, and techniques of make-up application for stage, television, and film.

**3321. ORAL INTERPRETATION (3-0)** 3 hours credit — The fundamental principles of oral interpretation and techniques of interpretation. Stresses background research concerning author and type of material. Prose is emphasized, especially essays, letters, diaries, journals, didactic prose, short stories, fables, legends, histories, and novels. Also listed as SPCH 3321. May be counted as either drama or speech, but not as both.

**3322. ORAL INTERPRETATION (3-0)** 3 hours credit — Principally drama and poetry with objective of acquiring an effective technique for sharing the enjoyment of literature with an audience. Also listed as SPCH 3322. May be counted as either drama or speech, but not as both.



- 3323. ORAL INTERPRETATION OF CHILDREN'S LITERATURE (3-0)** 3 hours credit — Designed to help the oral reader select, analyze, and read aloud for audiences of children and adults. Poems, fairy tales, legends, myths, and other forms of fiction and non-fiction. Story telling for children. Also listed as SPCH 3323. May be counted as either speech or drama, but not as both.
- 3330. STAGE MOVEMENT (3-0)** 3 hours credit — The interrelationships between expressive movement and acting. Theory and techniques of the actor's use of the body in role interpretation through programmed movements, pantomime, rhythm, and muscular coordination. Prerequisite: permission of the instructor.
- 3331. DANCE DRAMA (3-0)** 3 hours credit — Self expression in dance forms. Effective body movement and control. Response to rhythm and fluidity of movement. Prerequisite: permission of the instructor.
- 3332. ADVANCED DANCE DRAMA II (3-0)** 3 hours credit — Dynamics, design, gesture and rhythm as well as motivation and feeling in movement. Basic principles in choreography. Specific dance forms as a means of dramatic staging. Prerequisite: permission of the instructor.
- 3333. STAGING MUSICAL THEATRE I (3-0)** 3 hours credit — Techniques of staging musical theatre productions. Basic principles of auditioning, rehearsing, performing, and directing in musical theatre.
- 3341. ACTING III (2-4)** 3 hours credit — Learning how to perform roles through doing them. Work in detail on acting problems arising out of classwork, school plays, television, and film.
- 3342. PLAY DIRECTING (2-4)** 3 hours credit — The techniques of staging plays. Play interpretation, casting, rehearsal procedure, staging, and the role of the director in character analysis and creation. The directing and acting of scenes and one-act plays are laboratory assignments. **\$2 lab fee.**
- 3343. COSTUME AND DESIGN (2-4)** 3 hours credit — Theory and practice of costume design and application of those principles to stage, television, and film production. Prerequisite: DRAM 2306 or permission of the instructor.
- 4301. ACTING IV (2-4)** 3 hours credit — A history of acting as it relates to different acting styles. Prerequisite: permission of the instructor.
- 4302. THEATRE MANAGEMENT (3-0)** 3 hours credit — A survey of management-producer responsibilities applicable to community or professional theatre with attention to box office, marketing, production co-ordination, press and community relations and funding.
- 4303. THEATRE HISTORY I (3-0)** 3 hours credit — The development of theatrical art, from its beginnings in primitive ritual through the Egyptian, Oriental, Greek, and Roman periods, the Dark Ages, and the Middle Ages through the Renaissance period. Students read and analyze representative plays of various periods, with particular emphasis on the relation of drama to historical context. Methods of acting, costuming, and directing.
- 4304. THEATRE HISTORY II (3-0)** 3 hours credit — A continuation of Theatre History I. Theatrical art from the Renaissance to the present. Students read representative plays from Western Europe, Russia, England, and America. Development of the modern stage, acting methods, and production techniques.
- 4305. SCENE DESIGN II (3-0)** 3 hours credit — Continuation of Scene Design I, DRAM 3301. Deals with differences of stage, television, and film design, interaction of one with another, advanced methods, and application of scene design concepts.
- 4306. LIGHTING DESIGN II (3-0)** 3 hours credit — Theories and application of optical control and distribution, specialized topics, and advanced design technique and application principles of stage, television, and film. Participation in light crews in departmental productions required.
- 4307. HISTORY OF COSTUME (3-0)** 3 hours credit — Historical study of the styles and trends of fashion to the present as applied to stage, television, and film.
- 4309. DRAMATIC THEORY (3-0)** 3 hours credit — Major documents in evolution of dramatic theory, from classical foundations through major movements to contemporary criticism.
- 4321. READER'S THEATRE (3-0)** 3 hours credit — Readers interpret various kinds of literature for an audience. Analysis and criticism of literature are stressed. Also listed as SPCH 4321. May be counted as either speech or drama, but not as both.
- 4330. HISTORY OF AMERICAN THEATRE (3-0)** 3 hours credit — The evolution of theatre in the United States from its beginning in colonial times to the present day. Representative plays from various periods are studied.
- 4360. TEACHING DRAMA (3-0)** 3 hours credit — Techniques for effective teaching and administering a drama program.
- 4391. CONFERENCE COURSE (3-0)** 3 hours credit — Topics assigned on an individual basis and covering individual research or study in the designated areas. Can be taken more than once with a different topic each time. Prerequisite: permission of the instructor.
- 4393. SPECIAL TOPICS (3-0)** 3 hours credit — Special studies in drama and theatre. Topics may vary from semester to semester. May be repeated when topics vary or until a maximum of six credit hours is attained. Prerequisite: permission of the instructor.

## COMMUNICATION

### JOURNALISM (JOUR)

- 1345. WRITING FOR MASS MEDIA** (2-3) 3 hours credit — News gathering and writing techniques as applied to newspapers, broadcast media, and public relations with practice in research and writing. Formerly JOUR 2345; credit will not be granted for both courses.
- 2337. INTRODUCTION TO ADVERTISING** (3-0) 3 hours credit — Survey of the role of advertising in society. Basic concepts include marketing message creation, budget determination, agency-client relationships, and social responsibility of advertisers. Formerly JOUR 3337; credit not granted for both 3337 and 2337.
- 2338. INTRODUCTION TO PUBLIC RELATIONS** (3-0) 3 hours credit — Principles and methods of building goodwill and obtaining publicity; process of influencing public opinion; analysis of media; implementation of public relations programs. Prerequisite: JOUR 1345, 2345, or permission of the instructor.
- 2340. INTRODUCTION TO NEWS PHOTOGRAPHY** (2-3) 3 hours credit — Basic camera and darkroom techniques applicable to mass media; aesthetic, communicative, and technical requirements; viewpoints and procedures of picture editors.
- 2346. REPORTING** (2-3) 3 hours credit — Study of complex journalistic stories with emphasis on ethics, interviewing, and writing of general news stories, features, and specialized stories. Prerequisite: JOUR 1345 or 2345.
- 3303. COMMUNICATION GRAPHICS** (2-3) 3 hours credit — History and current practice in various forms of printing; type design, harmony and legibility; copy-fitting and layout fundamentals; introduction color reproduction; trends in media design. Prerequisite: permission of instructor.
- 3304. ADVERTISING STRATEGY** (2-3) 3 hours credit — Planning, writing, and designing advertisements. Applying principles of communication and motivation in selection of word and picture symbols; copywriting and layout construction. Prerequisite: JOUR 2337.
- 3305. ADVERTISING MEDIA** (3-0) 3 hours credit — Decision-making in selection and use of advertising media. Evaluation of media alternatives in terms of marketing objectives, audience analysis, cost, and editorial and program content. Selection of space time units and media schedules. Prerequisite: JOUR 2337.
- 3328. PUBLIC AFFAIRS REPORTING** (2-3) 3 hours credit — Research, planning and writing techniques required for covering such public affairs news sources as governmental offices, bureaus and agencies. Laboratory experience in covering local governmental agencies. Prerequisite: JOUR 2346.
- 3335. STUDENT PUBLICATION ADVISORY PROCEDURES** (3-0) 3 hours credit — Problem-solving approaches to sponsorship of student publications; editorial policies, advertising sales and promotions, business procedures, and staff motivation techniques.
- 3339. PUBLIC RELATIONS METHODS AND CASE STUDIES** (2-3) 3 hours credit — The theory and practice of selecting the appropriate mass media channels to reach and influence specialized groups, with practice in case studies and public relations writing. Prerequisites: JOUR 1345.
- 3341. PHOTOJOURNALISM** (2-3) 3 hours credit — Advanced darkroom techniques and professional shooting methods as applied to newspapers, magazines, news syndicates, and television. Practical experience in shooting news pictures and picture stories; picture editing principles; photographic news values; selecting pictures, cropping and producing picture layouts. Prerequisite: JOUR 2340 or permission of the instructor.
- 3345. NEWS EDITING** (2-3) 3 hours credit — The function of the editor and copy editor; extensive practice in newspaper page makeup, headline writing, and copy editing. Prerequisite: six hours of sophomore journalism or departmental permission. **\$2 lab fee.**
- 3350. MAGAZINE EDITING** (2-3) 3 hours credit — Theory and techniques of magazine editing, content and design with practice in editing, layout, graphics, principles and problems of general and specialty magazines, and company publications and business journals. Prerequisite: Advanced standing.
- 4301. ADVERTISING CAMPAIGNS** (3-0) 3 hours credit — Advanced study of advertising, marketing, and communication theories. Development of advertising plans for specific business firms by students working as account service groups. Prerequisites: JOUR 2337 and 3304 or 3305.
- 4316. PUBLIC RELATIONS CAMPAIGNS** (3-0) 3 hours credit — The study of advanced public relations campaign strategies based on research techniques; campaign development, implementation and assessment. Prerequisite: JOUR 3339.
- 4326. MAGAZINE WRITING** (3-0) 3 hours credit — A study of the nature, function, and structure of articles for magazines and newspapers. Research and interviewing techniques; extensive practice in writing. Prerequisite: advanced standing. Formerly JOUR 3326; credit will not be granted for both courses.
- 4327. OPINION AND PERSUASIVE WRITING** (3-0) 3 hours credit — Reading and analysis of the forms of persuasive writing, including editorials, commentaries, reviews, and interpretive articles. Prerequisite: advanced standing. Formerly JOUR 3327; credit will not be granted for both courses.
- 4378. DEPTH REPORTING** (3-0) 3 hours credit — Investigative and in-depth methods of news gathering and writing with emphasis on social science techniques. Prerequisite: advanced standing.

- 4380. PICTURE EDITING (2-3) 3 hours credit** — Advanced theory and techniques of picture selection, sizing, cropping, layout, design, reproduction methods, and ethics as applied to newspapers, magazines, and other print media. The role of the picture editor is emphasized.
- 4391. PROJECTS IN PROFESSIONAL EXPERIENCE (3-0) 3 hours credit** — Special studies in individual research or media experience for which students have a particular competence or interest. Individual conference to be arranged. Prerequisite: permission of the instructor.
- 4393. SPECIAL TOPICS (3-0) 3 hours credit** — Special studies in journalism. Topics will vary from semester to semester. May be repeated when topics vary, for a maximum of six credit hours. Prerequisite: permission of the instructor.

**RADIO-TELEVISION (RATV)**

- 1355. BROADCAST DICTION (2-3) 3 hours credit** — Application of the international phonetic alphabet to improve vocal processes, articulation, and pronunciation. Extensive practice in the reading of broadcast copy.
- 2357. RADIO PRODUCTION (2-4) 3 hours credit** — The fundamentals of radio broadcasting. The techniques of announcing, interviewing, script writing, programming, types of radio production, audience analysis, and vocational opportunities. Students participate in typical broadcasting activities.
- 2358. TELEVISION PRODUCTION (2-4) 3 hours credit** — The aural-visual capabilities of the television medium. Development of program concepts, writing, and producing television programs.
- 3310. DEVELOPMENT OF THE VISUAL IMAGE (3-0) 3 hours credit** — Analysis of video/film in relation to visualization. Study of symbolic rhetoric, composition, sound/music, editing, movement, and style. Prerequisite: permission of the instructor.
- 3318. BROADCAST SALES (3-0) 3 hours credit** — Process of developing an effective sales staff in the telecommunication industry. Sales policies, procedures, techniques, time-management, client relationships, closing, and sales service are discussed. Prerequisite: permission of the instructor.
- 3319. BROADCAST MANAGEMENT (3-0) 3 hours credit** — Management procedures, policies, and responsibilities in the successful operation of telecommunication industries. Areas covered are planning, problem-solving, personnel, facilities, government, financial resources, and public service. Prerequisite: permission of the instructor.
- 3340. ELECTRONIC NEWS (2-3) 3 hours credit** — News writing and gathering for the electronic media; use of basic audio and video electronic equipment; editing of audio and video tapes of news stories for analysis and criticism. Prerequisites: RATV 1355, 2357, and 2358 or permission of the instructor.
- 3341. PUBLIC AFFAIRS AND NEWS PROGRAMMING (2-3) 3 hours credit** — Planning of public affairs and news programs; story ideas, news judgments, reporting, shooting, editing, and presentation. Prerequisite: RATV 3340 or permission of the instructor. Formerly listed as RATV 3314; credit will not be granted for both 3314 and 3341.
- 3350. TELEVISION DOCUMENTARY (2-3) 3 hours credit** — Television documentary, non-fiction, and non-dramatic programs and their influence on political, social, cultural, and educational currents of the 20th Century. Students will arrange and produce original documentary sequences in the laboratory. Prerequisite: permission of the instructor.
- 3355. RADIO ANNOUNCING/PERFORMANCE (2-3) 3 hours credit** — Concentrated study of phrasing, timing, voice modulation, pronunciation, and articulation. Analysis and interpretation of all types of broadcast copy. Integration of announcing and performance into broadcast production. Prerequisites: RATV 1355, 2357, and 2358 or permission of the instructor. Completion of DRAM 1306 and 1307 is recommended before enrolling in this course.
- 3356. TELEVISION ANNOUNCING/PERFORMANCE (2-3) 3 hours credit** — Announcing and performing for video and film, including vocal delivery, movement, camera awareness, make-up, and clothing selection. Prerequisite: RATV 3355 or permission of the instructor.
- 3357. ADVANCED RADIO PRODUCTION (2-4) 3 hours credit** — Development of production and announcing skills basic to professional broadcasting. Students perform a variety of broadcasting assignments. Prerequisite: RATV 2357 or permission of the instructor.
- 3358. ADVANCED TELEVISION PRODUCTION (2-4) 3 hours credit** — Television production techniques and problem-solving involving the director and production staff. Topics include camera composition, video switching, audio practices, special effects, lighting, set design, and rehearsal procedures. Prerequisites: RATV 2357 and 2358, or permission of the instructor.
- 4320. CURRENT ISSUES IN TELECOMMUNICATIONS (3-0) 3 hours credit** — Emphasis on recent and current literature in radio and television broadcasting, cablecasting, industrial video, satellite distribution, and national and international telecommunication policies. Study of current problems and possible solutions.
- 4340. NEWS PRACTICUM (1-6) 3 hours credit** — Production and evaluation of news programs for transmission on electronic media. Students will participate in production of newscasts for airing via broadcast and cable systems. Prerequisite: RATV 3341 or permission of the instructor.

## COMMUNICATION

**4357. RADIO COMMERCIAL PRODUCTION (2-4)** 3 hours credit — Development of commercial, public service, and promotional announcements for radio/cable transmission. Studio recording techniques, music, sound effects, and vocal techniques are studied. Prerequisite: RATV 3357 or permission of the instructor.

**4358. TELEVISION DIRECTING (2-3)** 3 hours credit — Theories, techniques, and basic principles of writing, producing, and directing non-dramatic television sequences. Special emphasis on the control, execution, and integration of various elements.

**4360. CABLE OPERATIONS (1-6)** 3 hours credit — Application of programming theories and techniques to materials for release via RF/Cable/Satellite systems. Prerequisites: RATV 3355 or 3357 and RATV 3356 or 3358; or permission of the instructor.

**4391. CONFERENCE COURSE (3-0)** 3 hours credit — Topics assigned on an individual basis and covering individual research or study in the designated areas. Can be taken more than once with a different topic each time. Prerequisite: permission of the instructor.

**4392. SPECIAL TOPICS IN BROADCASTING (3-0)** 3 hours credit — Problems in radio-television broadcasting selected for intensive group study. Research methods and techniques and scholarly writing emphasized.

**4395. PROFESSIONAL INTERNSHIP (2-4)** 3 hours credit — Opportunity for the student to pursue research projects while working with radio stations, television stations, or related businesses. Prerequisite: permission of the instructor.

## SPEECH (SPCH)

**0185. FORENSICS (0-4)** 1 hour credit — Based on preparation for and participation in intercollegiate and intersquad forensic activities. Students engage in supervised research, development of debate skills and individual speaking activities. Prerequisite: permission of the instructor.

**1301. FUNDAMENTALS OF SPEECH (3-0)** 3 hours credit — Designed to fit the needs of professional men and women, supervisors, or anyone whose activities involve speech and human relations. Stress on development of the individual's speaking abilities and overcoming of nervousness, self-consciousness, and inadequacy in social situations. Class projects include a variety of speech activities.

**1302. VOICE AND DICTION (3-0)** 3 hours credit — Designed to improve the quality of the individual's speech. Enunciation, articulation, pronunciation, and the fundamentals of voice production. The phonetic alphabet as a visual means of teaching auditory differences. Also listed as DRAM 1302, credit will be granted in only one area.

**1303. COMMUNICATION FOR THE FOREIGN STUDENT (3-0)** 3 hours credit — Designed to improve sounds, oral vocabulary, and the use of phonetics for the student who speaks English as a second language. Will substitute for SPCH 1301 for foreign students.

**2303. ORAL COMMUNICATION (3-0)** 3 hours credit — Skills necessary to speaking with conviction. Speech as a social force, motivation for speaking, various methods and techniques of presenting speeches, and an introduction to general semantics. Practical experience in speaking before groups, with emphasis on audience analysis, research, and organization of speeches. Prerequisite: SPCH 1301 or special permission of the department.

**2304. ORAL COMMUNICATION (3-0)** 3 hours credit — Persuasive speaking and discussion. The techniques of personal leadership and parliamentary procedure. Criticism and evaluation of speakers, and the logical and psychological process of reasoning. Prerequisite: SPCH 1301 or special permission.

**2305. BUSINESS AND PROFESSIONAL COMMUNICATION (3-0)** 3 hours credit — Insight into communication skills. Designed to give the student experience in interviewing, business presentations, organizational reports, and the relationship of visual and oral presentations to business.

**3305. ARGUMENTATION AND DEBATE (3-0)** 3 hours credit — An advanced course in the development and presentation of clear, ethical, logical ideas and arguments. The motivation of human behavior through the spoken word, and the functional structure of the persuasive speech. Students prepare and deliver a series of persuasive talks; they also participate in debates and receive critical appraisal. Prerequisite: 12 hours of speech or special permission of the department.

**3306. DISCUSSION AND CONFERENCE (3-0)** 3 hours credit — Techniques and procedures necessary to effective oral communication in group situations. Students participate in a wide variety of speaking activities which utilize group dynamics ranging from panel discussion to problem-solving conferences. Prerequisite: 12 hours of speech or special permission of the department.

**3307. TEACHING INTERSCHOLASTIC SPEECH ACTIVITIES (3-0)** 3 hours credit — Theory and practice of teaching extra-curricular activities in speech and secondary schools. Prerequisite: permission of the instructor.

**3309. ORGANIZATIONAL COMMUNICATION (3-0)** 3 hours credit — Communication functions within formally structured social systems such as business, industry, government, the professions, and education. Emphasis on conceptual schemes for conducting research and developing training programs in organizational communication. Interpersonal behavior analysis as it relates to problems of morale, motivation, leadership, authority, and the introduction of change. Credit may not be earned for both SPCH 3309 and BUSA 3301.

- 3310. SMALL GROUP COMMUNICATION** (3-0) 3 hours credit — Theory and laboratory experience in small group dynamics with emphasis upon interpersonal and intergroup communication. The effects of the participants' personal characteristics and of the situational constraints on the nature of the communication and its outcome.
- 3312. BACKGROUNDS OF PUBLIC ADDRESS** (3-0) 3 hours credit — Traditional works pertinent to theories of communication. Emphasis on discovering the traditional bases shared by empirical and critical studies of rhetorical communication.
- 3315. COMMUNICATION FOR TEACHERS** (3-0) 3 hours credit — An emphasis on improving the communication skills and presentational techniques of teachers preparing for certification.
- 3316. COMMUNICATION IN HUMAN RELATIONS** (3-0) 3 hours credit — The human communication process within the social, business and family context. Theories and principles of interpersonal communication and perception of self and others.
- 3320. INTERVIEW PRINCIPLES** (3-0) 3 hours credit — A study of theory and research of interviewing as it relates to information-gathering and responses in radio/television, print media, surveys, and organizational environments. Emphasis on the psychology of question formulation and responses.
- 3321. ORAL INTERPRETATION** (3-0) 3 hours credit — The fundamental principles of oral interpretation and techniques of interpretation. Stresses background research concerning author and type of material. Prose is emphasized, especially essays, letters, diaries, journals, didactic prose, short stories, fables, legends, histories, and novels. Also listed as DRAM 3321. It may be counted as either speech or drama, but not as both.
- 3322. ORAL INTERPRETATION** (3-0) 3 hours credit — Principally drama and poetry, although prose may be touched on. Acquiring an effective technique for sharing the enjoyment of literature with an audience is the objective. Also listed as DRAM 3322. May be counted as either speech or drama, but not as both.
- 3323. ORAL INTERPRETATION OF CHILDREN'S LITERATURE** (3-0) 3 hours credit — Designed to help the oral reader select, analyze, and read aloud, for audiences of children and adults, literature of many types such as poems, fairy tales, legends, myths, and other forms of fiction and non-fiction. Story telling for children included. Also listed as DRAM 3323. May be counted as either speech or drama, but not as both.
- 4300. PERSUASIVE COMMUNICATION** (3-0) 3 hours credit — A critical analysis of the role of persuasive communication as it affects society. Extensive reading of the theories and techniques of persuasion, propaganda, influencing human behavior, motivation research and campaign strategy.
- 4302. MODERN PUBLIC ADDRESS** (3-0) 3 hours credit — A survey of 20th Century works pertinent to the study of communication. Emphasis upon discovering the contemporary bases shared by empirical and critical studies of communication.
- 4315. BUSINESS PRESENTATIONS** (3-0) 3 hours credit — The role of internal and external informative presentations in business organizations. Extensive readings and practice with emphasis on research, development, organization, and critical evaluation of oral and visual presentations.
- 4320. MANAGERIAL COMMUNICATION** (3-0) 3 hours credit — Analysis of the role of the business manager; readings in research and theory with emphasis on problem-solving and motivation.
- 4321. READER'S THEATRE** (3-0) 3 hours credit — Readers interpret various kinds of literature of an audience. Analysis and criticism of literature are stressed. Listed also as DRAM 4321. May count as either speech or drama, but not as both.
- 4334. SEMINAR IN SPEECH COMMUNICATION EDUCATION** (3-0) 3 hours credit — Curricular methods, techniques, and problems unique to the teaching of speech communication at all levels. History and philosophy of speech communication and modes of developing speech competency.
- 4360. TEACHING SPEECH** (3-0) 3 hours credit — Designed to enable the prospective speech teacher to present curriculum methods, techniques, and theories. Replaces SPCH 4361 and 4362.
- 4391. CONFERENCE COURSE** (3-0) 3 hours credit arranged — Topics will be assigned on an individual basis and will cover individual research or study in the designated areas. Can be taken more than once with a different topic each time. Prerequisite: permission of the instructor.
- 4393. SPECIAL TOPICS** (3-0) 3 hours credit — Special studies in speech. Topics will vary from semester to semester. May be repeated when topics vary or until a maximum of six credit hours is attained. Prerequisite: permission of the instructor.
- 4395. INTERNSHIP** (3-0) 3 hours credit — Individual research while working with business and industry. Individual conference to be arranged. Prerequisite: selection by faculty committee.

# The Department of ENGLISH

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## REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN ENGLISH

<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent, and 2314.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312, and six hours of English history.
<b>Mathematics:</b>	Six hours.
<b>Science:</b>	12 hours of science, six of which must be in one science with laboratory.
<b>Electives:</b>	Sufficient to complete the total number of hours required for the degree.
<b>Major:</b>	A total of 42 hours to include ENGL 1301 and 1302 or waivers for advanced standing. ENGL 2301 and either 2302 or 2303. (Transfer students who already have sophomore English credit should not register for additional sophomore English courses before seeing a departmental counselor.) 30 hours of advanced courses (3000 and 4000 level). Before undertaking advanced work in English, students must apply to the Department of English for an officially designated counselor who will aid the student in preparing his program.
<b>Minor:</b>	18 hours, at least six of which must be advanced.
<b>Total:</b>	128 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

### OPTION FOR MAJOR IN CLASSICS OR COMPARATIVE LITERATURE

Students majoring in English may select an option in classical civilization or in comparative western literature. **Prior to registering for advanced courses in either of these areas, students should report to the Department of English office for the assignment of a special counselor.**

**REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE  
IN ENGLISH  
(CLASSICS OPTION)**

<b>Foreign Language:</b>	14 hours in Latin and/or Greek.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312, and six advanced hours in history of the Graeco-Roman world.
<b>Mathematics:</b>	Six hours.
<b>Science:</b>	12 hours of science, six of which must be in one science with laboratory.
<b>Electives:</b>	Sufficient to give the total number of hours required for a degree. These should be chosen, as far as possible, from course offerings in the general field of classical civilization.
<b>Major:</b>	ENGL 1301, 1302. ENGL 2301, 2302. Other advanced courses: 24 to 30 hours, at least 12 of which should be in classical literature.
<b>Minor:</b>	18 hours, at least six of which must be beyond the second year, preferably in one of the following fields; art, comparative literature, English literature, foreign languages (including linguistics), history, philosophy, sociology (anthropology), or psychology.
<b>Total:</b>	125 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

**REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE  
IN ENGLISH  
(COMPARATIVE LITERATURE OPTION)**

<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent and 2314.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312, and six advanced hours in history other than that of the United States.
<b>English:</b>	1301, 1302, 2301, and 2302.
<b>Mathematics:</b>	Six hours.
<b>Science:</b>	12 hours of science, six of which must be in one science with laboratory.
<b>Electives:</b>	Sufficient to give the total number of hours required for a degree. These should be chosen, as far as possible, from course offerings in the general field of western civilization.
<b>Major:</b>	Advanced courses: 24 to 30 hours, 12 of which must be in comparative literature. (At least nine must be at the 4000 level for the foreign languages option.)
<b>Minor:</b>	18 hours, at least six of which must be beyond the second year, preferably in one of the following fields: art, classical literature, English literature, foreign languages (including linguistics), history, philosophy, sociology, and psychology.
<b>Total:</b>	125 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

## ENGLISH

### REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN ENGLISH

#### (Secondary Teacher Certification Plan)

- Foreign Language:** 1441, 1442, 2313 or equivalent, and 2314.
- Political Science:** 2311, 2312.
- History:** 1311, 1312.
- Mathematics:** Six hours.
- Science:** 12 hours of science, six of which must be in one science with laboratory.
- Major:** 36 hours as follows:  
ENGL 1301 and 1302 (or waivers for advanced standing) and any six hours of 2000-level literature.  
Advanced work:  
**Group I** (Language and Grammar), 3 hours: 4301 or 4302.  
**Group II** (English Literature), 3 hours: 3303, 3304, 3305, 3307, 3308, 3309, 3311, 3312, 3314, 3321, 4303, 4304, 4305, 4322, 4326, 4327, 4328, 4333, 4334.  
**Group III** (American Literature), 3 hours: 3351, 3352, 4307, 4309, 4311, 4312, 4313, 4316, 4319, 4320, 4336.  
**Group IV** (Comparative, Classical, and Continental Literature), 3 hours: 3301, 3302, 3306, 3316, 3318, 3320, 3323, 3324, 3325, 3326, 3330, 3333, 3334, 3337, 3339, 4329, 4337.  
An additional 12 hours of advanced work. These advanced hours could come from one or more of the above groupings, from any advanced English courses not listed in these groupings (such as studies in literary criticism, women in literature, advanced rhetoric, honors courses, conference courses), or from a combination of these.
- Minor:** 24 hours, at least 12 of which must be beyond the second year in any of the following disciplines: biology, chemistry, drama, earth science, French, German, health-physical education, history, journalism, life-earth middle school, mathematics, physical science, physics, political science, psychology, Russian, Spanish, sociology, speech.
- Total:** 128 hours, of which 36 must be advanced, plus physical education or military science or marching band as required.
- Teacher Certification:** English majors desiring certificates in secondary education must take 18 hours of 3000-4000 education courses as prescribed by the Center for Professional Teacher Education.

#### ENGLISH MINOR (Teacher Certification Plan)

Students majoring in other subjects and offering English as a minor (the second teaching field) are required to take 24 hours in English, as follows:

- |  |                             |
|--|-----------------------------|
| ENGL 1301 and 1302.                            | Three hours from Group II.  |
| Six hours of any sophomore literature courses. | Three hours from Group III. |
| Three hours from Group I.                      | Three hours from Group IV.  |
| (See major.)                                   |                             |

Teacher certification: Students must take the prescribed 18 hours of 3000-4000 education courses.



**REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE  
IN ENGLISH/ELEMENTARY EDUCATION**

All the degree requirements are the same as those for secondary certification with the following exceptions:

- A. A minor is not required.
- B. Thirty hours of courses in elementary education must be taken in place of the minor. (See Education section of the catalog for education courses required in this program.)
- C. Electives Under Combination of Subjects:
  - 1. Six hours. See advisor for approved list.
  - 2. Six hours. See advisor for approved list.

**OPTION FOR MINOR IN WRITING**

The Writing Option is offered for students who wish to concentrate in writing as a part of their undergraduate curriculum. With the permission of their departmental undergraduate advisor, students may enroll in a series of courses and obtain a minor in writing.

Students selecting the Writing Option should consult first with the undergraduate advisor in their department or program for approval of the minor, then with the undergraduate English advisor. Working with advisors, students will select a sequence of advanced courses to fulfill their minor requirement. Students may concentrate on technical and professional writing or rhetoric and composition with options for additional courses in creative writing and teaching composition.

Required Courses for Students Selecting the Writing Option:

English 3371.

Nine hours advanced writing electives.

Students should contact the undergraduate English advisor for additional information about the Writing Option.

**Suggested Course Sequence for BA in English without Certification:**

**FRESHMAN YEAR**

**First Semester:** ENGL 1301; Mathematics, 3 hours; HIST 1311; Foreign Language 1441; Elective, 3 hours (PHIL 1312 recommended); Physical Education or Military Science or Marching Band — Total Credit 17 hours.

**Second Semester:** ENGL 1302; Mathematics, 3 hours; HIST 1312; Foreign Language 1442; Elective, 3 hours; Physical Education or Military Science — Total Credit 17 hours.

**SOPHOMORE YEAR**

**First Semester:** ENGL 2301; Elective, 3 hours; Science, 3 hours; Foreign Language 2313; POLS 2311; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 hours.

**Second Semester:** ENGL 2302 or 2303; HIST 1314 or Advanced English History, 3 hours; Science, 3 hours; Foreign Language 2314; POLS 2312; Physical Education or Military Science — Total Credit 16 or 17 hours.

**JUNIOR YEAR**

**First Semester:** Advanced English, 9 hours; Minor, 3 hours; Science, 3 or 4 hours — Total Credit 15 or 16 hours.

**Second Semester:** Advanced English, 9 hours; Minor, 3 hours; Science, 3 or 4 hours — Total Credit 15 or 16 hours.

**SENIOR YEAR**

**First Semester:** Advanced English, 6 hours; Minor, 6 hours; Elective, 3 hours — Total Credit 15 hours.

**Second Semester:** Advanced English, 6 hours; Minor, 6 hours; Elective, 3 hours — Total Credit 15 hours.

**ENGLISH (ENGL)**

*Acting Chairman: Assistant Professor J. McDowell*

*Professors Eichelberger, Estes, Garner, Goyne, Kauffman, Kendall, Littlefield, R. McDowell, Roemer, Sewell*

*Associate Professors Beaudry, Burns, Ford, Frank, Golladay, Hanks, Lacy, Lewis, Moffett, Reddick, Richardson, Swadley, Turbeville, Vitanza, Zacha*

*Assistant Professors Delmar, Potvin, Reed, Ryan*

**1300. BASIC COMPOSITION (3-0)** 3 hours credit — Fundamental principles of grammar and composition. Emphasis on diction, standard usage, and essay writing. (Does not satisfy any departmental English requirement.)

## ENGLISH

**1301. FRESHMAN COMPOSITION (3-0)** 3 hours credit — Study and practice of writing expository and argumentative prose, with emphasis on paper organization, paragraph development, and sentence structure. Analysis and discussion of expository prose models.

**1302. FRESHMAN COMPOSITION (3-0)** 3 hours credit — Continuation of study and practice of effective exposition. Analysis, discussion, and critical writing on readings of selected literary types. Prerequisite: ENGL 1301.

### INFORMATION ON SOPHOMORE COURSES

When registering for the second year of college English, students should consult their course outlines printed elsewhere in this catalog. In general, students may register for any two 2000-English subjects in any order. Transfer students who already have sophomore English credit should NOT register for additional sophomore English courses before seeing a department counselor. Unless otherwise indicated, six hours of freshman English credit is prerequisite to all 2000-level courses, and six hours of sophomore English credit is prerequisite to all 3000- or 4000-level courses.

**2301. LITERATURE OF THE GRAECO-ROMAN WORLD (3-0)** 3 hours credit — Epic, dramatic, poetic, and philosophic writings from the Greek and Roman world with emphasis on the study of ideas and literary forms which have influenced all subsequent Western literature.

**2302. LITERATURE OF THE MIDDLE AGES AND RENAISSANCE (3-0)** 3 hours credit — Poetry and prose of Western Europe of the Middle Ages and Renaissance with emphasis on the study of ideas and literary forms characteristic of those periods and influential in later Western literature.

**2303. LITERATURE FROM THE SEVENTEENTH CENTURY TO MODERN TIMES (3-0)** 3 hours credit — A survey of major continental writers and movements from the end of the 17th Century to the 20th Century.

**2305. INTERMEDIATE EXPOSITION (3-0)** 3 hours credit — An intermediate writing course that includes generating ideas, collecting data, determining audience, and organizing material into clear, coherent compositions. May not be used to satisfy requirement in sophomore literature.

**2308. WOMEN IN THE MODERN WORLD (3-0)** 3 hours credit — The role, position, and consciousness of modern woman from various disciplinary perspectives. Instructors are drawn from several departments and their approach to the modern feminine experience is broadly humanistic and self-consciously interdisciplinary. The problems, progress, and possibilities of women. Also offered as SOCI 2308; credit will be granted only once. Cannot be used for major credit toward a degree in sociology or English, nor can it be used to fulfill sophomore literature requirements for any degree.

**2311. SURVEY OF ENGLISH LITERATURE (3-0)** 3 hours credit — From "Beowulf" through 18th Century.

**2312. SURVEY OF ENGLISH LITERATURE (3-0)** 3 hours credit — From the beginning of Romanticism to the 20th Century.

**2323. MAJOR AMERICAN WRITERS TO 1860 (3-0)** 3 hours credit — Edward Taylor to Herman Melville and Walt Whitman.

**2324. MAJOR AMERICAN WRITERS SINCE 1860 (3-0)** 3 hours credit — Mark Twain, Emily Dickinson, and Henry James to present-day writers.

**2334. TECHNICAL WRITING (3-0)** 3 hours credit — Training in writing clear, concise technical reports on scientific, engineering, and business projects; the processes of collection, organization, interpretation, and logical presentation of facts and ideas; and the use of graphic aids. Some departments allow this course to substitute for three hours of sophomore literature. Prerequisites: six hours of freshman English and sophomore standing.

### INFORMATION ON ADVANCED COURSES

There is no difference between 3000 and 4000 courses in level of difficulty of work required, nor does the number suggest the year in which a certain course may be taken. The prerequisite for all the following courses is six credit hours of sophomore English or special permission of the instructor teaching the course.

**3301. RUSSIAN LITERATURE IN TRANSLATION (3-0)** 3 hours credit — Lectures and readings cover the works of major Russian authors during the period from the beginning of Russian literature until the 1917 Revolution. The interrelationships of various literary movements and philosophies are surveyed. Also listed as RUSS 3301; credit will be granted in only one area.

**3302. LITERATURE IN TRANSLATION (3-0)** 3 hours credit — Lectures and readings cover the works of major authors and intellectual trends of a given period. May be repeated for credit as topics or periods vary. No more than three hours may be counted toward a degree in foreign language. This course is also listed as FREN or SPAN 3302.

**3303. MEDIEVAL ENGLISH LITERATURE (3-0)** 3 hours credit.

**3304. CHAUCER (3-0)** 3 hours credit.

**3305. TUDOR ENGLISH LITERATURE (3-0)** 3 hours credit.

- 3306. SOVIET LITERATURE IN TRANSLATION** (3-0) 3 hours credit — Lectures and readings cover the works of major Soviet authors from 1917 to present. The literature will be studied against the background of unfolding social and political developments in the USSR. This course is also listed as RUSS 3306; credit will not be granted for both ENGL 3306 and RUSS 3306.
- 3307. JACOBAN AND PURITAN ENGLISH LITERATURE** (3-0) 3 hours credit.
- 3308. MILTON** (3-0) 3 hours credit.
- 3309. AUGUSTAN ENGLISH LITERATURE** (3-0) 3 hours credit.
- 3311. ROMANTIC ENGLISH LITERATURE** (3-0) 3 hours credit.
- 3312. VICTORIAN ENGLISH LITERATURE** (3-0) 3 hours credit.
- 3314. MODERN ENGLISH POETRY** (3-0) 3 hours credit.
- 3316. WORLD LITERATURE WRITTEN IN ENGLISH** (3-0) 3 hours credit — A survey of the literature of one or more of the following areas: Africa, Australia, Canada, India, New Zealand, the West Indies.
- 3318. MEDIEVAL PERIOD** (3-0) 3 hours credit — The major literary currents in Western Europe during the medieval periods. Also listed as COML 3318. Credit will be granted for one of the courses only, except that the course may be repeated when the content changes.
- 3320. RENAISSANCE AND BAROQUE LITERATURE** (3-0) 3 hours credit — The central literary currents in Western Europe from approximately 1500 to 1650 with emphasis on the humanistic spirit. Also listed as COML 3320. Credit will be granted for one of the courses only, except that the course may be repeated for credit when the content changes.
- 3321. TWENTIETH CENTURY ENGLISH LITERATURE** (3-0) 3 hours credit — Major literary currents in 20th Century British literature.
- 3323. EIGHTEENTH CENTURY LITERATURE** (3-0) 3 hours credit — Eighteenth Century movements central to the western literary tradition. Also listed as COML 3323. Credit will be granted for one of the courses only.
- 3324. NINETEENTH CENTURY LITERATURE** (3-0) 3 hours credit — Nineteenth Century movements central to the western tradition. Also listed as COML 3324. Credit will be granted for one of the courses only, except that the course may be repeated for credit when the content changes.
- 3325. TWENTIETH CENTURY LITERATURE** (3-0) 3 hours credit — Twentieth Century movements central to the western literary tradition. Also listed as COML 3325. Credit will be granted for one of the courses only, except that the course may be repeated for credit when the content changes.
- 3326. THE CONTINENTAL NOVEL** (3-0) 3 hours credit — The major 19th and 20th Century European novels and their relevance to English and American novels.
- 3327. PRINCIPLES OF LITERARY CRITICISM** (3-0) 3 hours credit — The writings of major literary critics from Aristotle to the present. Also listed as COML 3327. Credit will be granted for one of the courses only.
- 3328. PRINCIPLES OF LITERARY CRITICISM** (3-0) 3 hours credit — Modern literary criticism with emphasis on practical application of the methods studied. Also listed as COML 3328. Credit will be granted for one of the courses only.
- 3330. LITERARY BACKGROUNDS** (3-0) 3 hours credit — Mythology and Biblical stories as primary sources of English and American literature. The allusive and mythic uses of these sources by the creative writer.
- 3333. GREEK POETRY** (3-0) 3 hours credit — Greek epic and lyric poetry. Also listed as GREK 3333. Credit will be granted for one of the courses only, except that the course may be repeated for credit when the content changes.
- 3334. GREEK DRAMA** (3-0) 3 hours credit — Greek tragedy and comedy. Also listed as GREK 3334. Credit will be granted for one of the courses only, except that the course may be repeated for credit when the content changes.
- 3337. ROMAN POETRY AND PROSE** (3-0) 3 hours credit — Major writers or special topics such as Roman satire. Also listed as LATN 3337. Credit will be granted for one of the courses only, except that the course may be repeated for credit when the content changes.
- 3339. READINGS IN CLASSICAL LITERATURE** (3-0) 3 hours credit — An in-depth study of some aspect of ancient Greek or Roman literature. May be repeated for credit whenever the content changes.
- 3365. CHILDREN'S LITERATURE** (3-0) 3 hours credit — A survey of literature for children; analysis of outstanding authors and illustrators of that literature. Designed for prospective elementary teachers. Prerequisites: EDUC 3306, 3316.
- 3370. WOMEN IN LITERATURE** (3-0) 3 hours credit — Works by women writers and/or images of women in literature. May be repeated for credit as subject matter changes.
- 3371. ADVANCED EXPOSITION** (3-0) 3 hours credit — Emphasis on writing that aims to explain, demonstrate, or explore a subject. Attention to audience, invention, style (coherence, unity, and clarity), and to the revision process. Assignments include narration, definition, comparison, classification, and cause.
- 3375. LITERARY WRITING** (3-0) 3 hours credit — Focuses on the craft of narrative, poetic, and dramatic discourses. Attention to figurative language, characterization, dialogue, point of view, and

## ENGLISH

poetic structure as well as other elements of the craft. Assignments may include the writing of character sketches, short stories, poetry in various forms, and one-act play.

**3381. ANALYTICAL WRITING (3-0) 3 hours credit** — An advanced course in research and analytical writing which focuses on structure, style, organization, and critical analysis of published information. Topics include writing of abstracts and summaries, preparation of annotated bibliographies, and writing of research papers.

**3390. HONORS COLLOQUIUM (3-0) 3 hours credit** — An interdisciplinary course designed to meet the needs of advanced undergraduates in the Honors Program. Prerequisite: participation in the Honors Program and/or permission of instructor.

**3391. LITERATURE CONFERENCE COURSE (3-0) 3 hours credit** — Requires permission of the departmental chairman and the instructor.

**4301. HISTORY AND DEVELOPMENT OF THE ENGLISH LANGUAGE (3-0) 3 hours credit** — The sounds and structure of the English language from pre-history to the present.

**4302. STRUCTURE OF MODERN ENGLISH (3-0) 3 hours credit** — An introduction to the grammatical structure of modern English from the level of the phrase to that of the total discourse, with attention to its role in effective writing.

**4303. THE EIGHTEENTH CENTURY ENGLISH NOVEL (3-0) 3 hours credit.**

**4304. THE NINETEENTH CENTURY ENGLISH NOVEL (3-0) 3 hours credit.**

**4305. THE TWENTIETH CENTURY ENGLISH NOVEL (3-0) 3 hours credit.**

**4307. EARLY AMERICAN LITERATURE (3-0) 3 hours credit** — Emphasizes the diversity of our early literature. Indian oral narratives, travel accounts, Puritan writings, diaries, autobiography, poetry, drama, and Gothic fiction.

**4309. THE AMERICAN TRANSCENDENTALISTS (3-0) 3 hours credit** — The derivation, scope, and impact of the transcendental movement on American letters, including works of Emerson and Thoreau.

**4311. AMERICAN FICTION TO 1860 (3-0) 3 hours credit.**

**4312. AMERICAN FICTION, 1860 to 1910 (3-0) 3 hours credit.**

**4313. AMERICAN FICTION SINCE 1910 (3-0) 3 hours credit.**

**4316. ETHNIC AMERICAN LITERATURE (3-0) 3 hours credit** — Oral and written literature of one or more ethnic segments of the American population.

**4318. PHILOSOPHY IN LITERATURE (3-0) 3 hours credit** — The role of ideas in literature and an analysis of the actual contacts between philosophy and the dominant world views of the great writers of literature. Also listed as PHIL 4318. Credit will be granted for one of the courses only.

**4319. AMERICAN POETRY TO 1912 (3-0) 3 hours credit.**

**4320. AMERICAN POETRY SINCE 1912 (3-0) 3 hours credit.**

**4322. ENGLISH DRAMA THROUGH MARLOWE (3-0) 3 hours credit.**

**4326. THE DRAMAS OF SHAKESPEARE (3-0) 3 hours credit.**

**4327. ENGLISH DRAMA: LATE ELIZABETHAN, JACOBAN, CAROLINE (3-0) 3 hours credit.**

**4328. ENGLISH DRAMA, 1660 TO SHAW (3-0) 3 hours credit.**

**4329. MODERN DRAMA OF THE WESTERN WORLD (3-0) 3 hours credit.**

**4330. ADVANCED LITERARY WRITING (3-0) 3 hours credit** — Workshop focusing on the art of narrative, poetic, and dramatic discourse. Attention to the conception, design, and execution of the whole work, rather than to its components. Assignments may include the writing of short stories, poetry in various forms, single- or multi-act plays, and the novel. Prerequisite: ENGL 3375.

**4334. SPECIAL TOPICS IN ENGLISH LITERATURE (3-0) 3 hours credit.**

**4335. SPECIAL TOPICS IN ENGLISH LINGUISTICS (3-0) 3 hours credit.**

**4336. SPECIAL TOPICS IN AMERICAN LITERATURE (3-0) 3 hours credit.**

**4337. SPECIAL TOPICS IN COMPARATIVE LITERATURE (3-0) 3 hours credit.**

**4338. TWENTIETH CENTURY LITERATURE (3-0) 3 hours credit.** Modern English and American writers.

**4339. RHETORIC AND COMPOSITION (3-0) 3 hours credit** — Focuses on the historical development of rhetorical practices from the classical to the contemporary period. Emphasis is on the study of style and the methods of discovering and developing topics, determining audiences, and organizing discourses. Assignments include the writing of both information and argumentative discourse.

**4340. ADVANCED TECHNICAL WRITING I (3-0) 3 hours credit** — Specialized types of writing required of scientists, engineers, and management in industry. Topics include the writing of definitions, descriptions, process analyses, instructions, specifications, memoranda, letters, and formal reports.

**4341. ADVANCED TECHNICAL WRITING II (3-0) 3 hours credit** — Continued study of the specialized types of writing required of scientists, engineers, and management in industry. Topics include the writing of abstracts, proposals, reports, technical articles, and presentations. A special focus is on the use of graphic aids and the preparation of oral presentations.

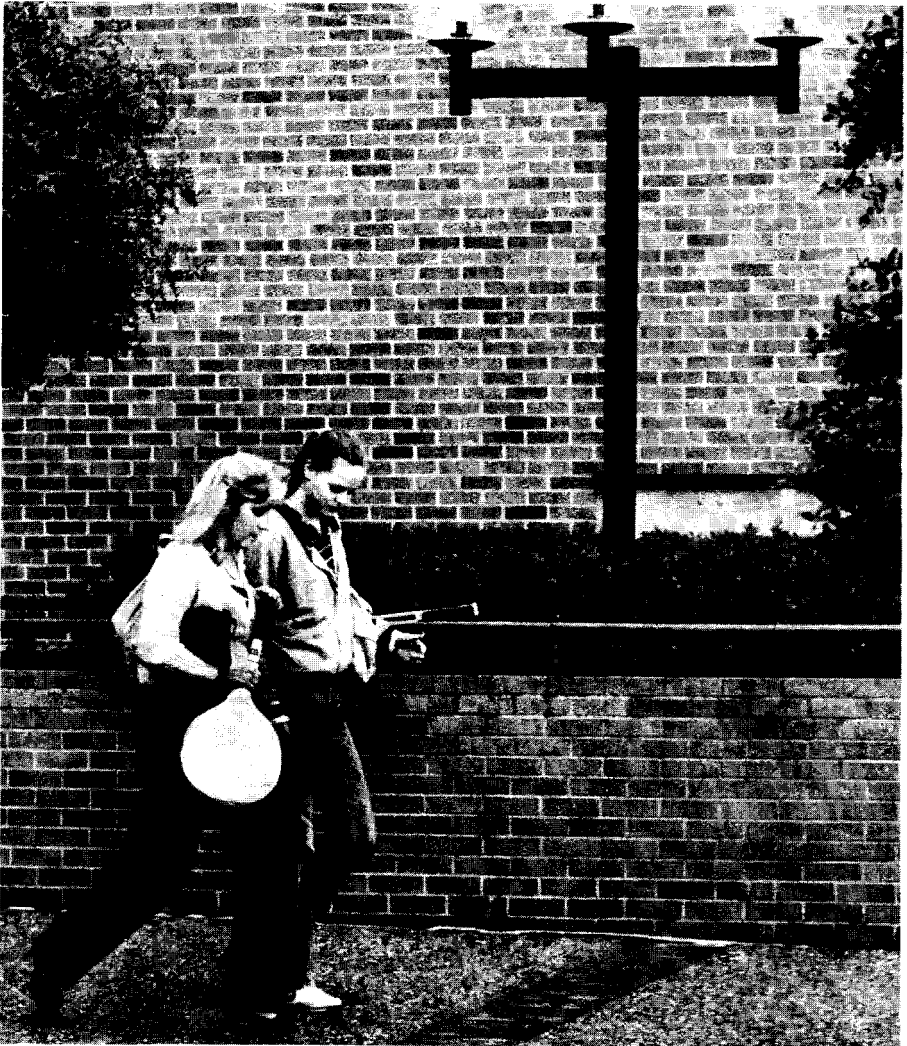
**4350. PROFESSIONAL AND BUSINESS WRITING I (3-0) 3 hours credit** — Advanced expository writing which focuses on types of writing required in business and industry. Topics include general principles of business communication; business letters (invitations, transmittals, inquiries, requests, complaints, adjustments, collections, sales, instructions); memoranda; and reports.

**4351. PROFESSIONAL AND BUSINESS WRITING II (3-0)** 3 hours credit — Advanced expository writing; focus is on proposal and report writing strategies.

**4370. TEACHING WRITING (3-0)** 3 hours credit — A series of workshops requiring practice in writing and focusing on approaches to teaching the writing process. Topics include freewriting, composition and the arts, composition and the media, sentence combining, and composition and reading.

**4371. ARGUMENTATIVE WRITING (3-0)** 3 hours credit — Emphasis on writing that aims to persuade and convince. Attention to invention, audience, logic (deductive, inductive, dialectic, and the Toulmin model), to case construction, and to ethical appeal. Assignments may focus on all forms of argumentative discourse, including advertising, political oratory, and editorials.

**4394. HONORS THESIS/SENIOR PROJECT (3-0)** 3 hours credit — Applies only to participants in the Liberal Arts Honors Program, and fulfills the requirement that during the participant's senior year, the student must complete a thesis or a project of equivalent difficulty under the direction of a faculty member in the major department.



# The Department of FOREIGN LANGUAGES and LINGUISTICS

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The Department of Foreign Languages and Linguistics offers programs leading to the Bachelor of Arts Degree in French, German, Russian, and Spanish. Options include Teacher Certification, Ibero-American Studies, Soviet and East European Studies, Classics, and Comparative Literature.

It is the responsibility of the student to initiate a request for the preparation of his degree plan through the department chairman upon completing 45 semester hours. See Degree Plan Procedure, under Degree Program, in the general information section of this catalog.

## REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN FRENCH, GERMAN, RUSSIAN, OR SPANISH

<b>English:</b>	1301, 1302 plus six hours of literature.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Mathematics:</b>	Six semester hours (1306, 1307 recommended).
<b>Science:</b>	12 hours of science, six of which must be in one science with laboratory.
<b>Electives:</b>	Sufficient number of hours to complete the total hours required for a degree.
<b>Major:</b>	1441, 1442, 2313, 2314, or equivalent; plus 24 advanced hours in the major language field (21 hours for teacher certification), at least nine of which must be at the 4000 level.
<b>Linguistics:</b>	3311.
<b>Minor:</b>	18 hours, at least six of which must be advanced. Options within the department include any other foreign language (1441, 1442, 2313, 2314, or equivalent, plus six advanced hours, or 12 advanced hours for secondary teacher certification) or Linguistics (18 hours, including 3311).
<b>Total:</b>	128 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

## OPTIONS

The following options may be selected, but courses listed under options do not substitute for courses specified by number in the basic degree plan above.

## TEACHER CERTIFICATION

**(1) Bachelor of Arts Degree in a Foreign Language with Secondary Certification** — This plan requires a second teaching field.

**(2) Bachelor of Arts Degree in a Foreign Language with Elementary Teacher Certification** — This plan is a dual major: French/Elementary Education, German/Elementary Education, Russian/Elementary Education, or Spanish/Elementary Education. This plan does not require a second teaching field. Students in Spanish may also pursue a specialization in bilingual education.

See the education section of this catalog concerning requirements for teacher certification. Students who are interested in the education program should contact the Center for Professional Teacher Education on campus.

## FOREIGN LANGUAGES AND LINGUISTICS

### IBERO-AMERICAN STUDIES

(Bachelor of Arts Degree in Foreign Languages with a concentration in Ibero-American studies)

<b>Political Science:</b>	3316.
<b>History:</b>	4365, 4366, 4367.
<b>Economics:</b>	4321, 4322, (recommended).
<b>Major:</b>	Spanish.
<b>Minor:</b>	Portuguese.

### SOVIET AND EAST EUROPEAN STUDIES

(Bachelor of Arts Degree in Russian with a concentration in area studies)

<b>Political Science or History:</b>	4362*, 4363*, 4364*, 4387*
<b>History:</b>	4359*, 4360*.
<b>English:</b>	3301*, 3306*.
<b>Major:</b>	Russian, plus selected Russian area courses from the following: 4359, 4360, 4362, 4363, 4364, 4387, 3301, and 3306.

\*Other courses approved by the major advisor may be substituted if these designated courses are taken for credit in Russian language.

### OPTIONS IN CLASSICS AND COMPARATIVE LITERATURE

Students majoring in Foreign Languages may select an option in classical civilization or in comparative western literature. Requirements for these options are listed in the English section of the catalog. For further information, inquire at the Department of Foreign Languages.

### THE INTERNATIONAL LINGUISTICS CENTER (The Summer Institute of Linguistics)

The International Linguistic Center in Dallas (near Duncanville) and The University of Texas at Arlington offer cooperatively a program in linguistic training and research. This program leads to the MA and the PhD degree at UTA with a major or minor in linguistics, or to an undergraduate minor in linguistics. The curricula are listed in the UTA undergraduate and graduate catalogs. ILC requirements and procedures appear in ILC catalogs but degree requirements are those specified by UTA. Participants must apply for admission to UTA. Courses may be taken for credit by students who are not pursuing a degree, provided they qualify for admission.

Persons who wish to pursue the program at ILC but who are not eligible for admission to UTA may register as auditing students by arrangement with ILC.

Registration is administered by UTA on campus. Students may take the courses on either or both campuses. Refer to the semester Schedule of Classes for location of courses.

#### **Suggested Course Sequence:**

#### **FRESHMAN YEAR**

**First Semester:** \*Major Foreign Language, 3 or 4 hours; ENGL 1301; Science, 3 hours; HIST 1311; Mathematics, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 hours.

**Second Semester:** Major Foreign Language, 3 or 4 hours; ENGL 1302; Mathematics, 3 hours; Science, 3 hours; HIST 1312; Physical Education or Military Science — Total Credit 16 or 17 hours.

#### **SOPHOMORE YEAR**

**First Semester:** Major Foreign Language, 3 hours; English Literature, 3 hours; Science, 3 hours; POLS 2311; \*Minor, 3 or 4 hours; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 hours.

**Second Semester:** Major Foreign Language, 3 hours; English Literature, 3 hours; Science, 3 hours; POLS 2312; Minor, 3 or 4 hours; Physical Education or Military Science — Total Credit 16 or 17 hours.

#### **JUNIOR YEAR**

**First Semester:** Major Foreign Language, 6 hours; LING 3311; Minor and/or Electives, Options, 9 hours — Total Credit 18 hours.

**Second Semester:** Major Foreign Language, 6 hours; Minor and/or Electives, Options, 12 hours — Total Credit 18 hours.

\*Courses in Major and Minor cannot be specified because entering freshmen begin at different levels, depending on high school or other background.

## **FOREIGN LANGUAGES AND LINGUISTICS**

### **SENIOR YEAR**

**First Semester:** Major Foreign Language and/or Minor, Electives, Options, 15 hours — Total Credit 15 hours.

**Second Semester:** Major Foreign Language and/or Minor, Electives, Options, 15 hours — Total Credit 15 hours.

## **FOREIGN LANGUAGES AND LINGUISTICS**

*Chairman: Professor Werth*

*Professors Adams, Jett, Longacre, McDowell, Monostory, Stuart*

*Adjunct Professors Merrifield, K. Pike, Rensch*

*Associate Professors Acker, Frank, Gibson, Keilstrup, Ordonez, Poulter, Sanchez, Steinecke, Studerus*

*Adjunct Associate Professors Greenlee, Hale, Hess, Huttar, Peck, Robbins, Smith, Thomas*

*Assistant Professors Burquest, Capote, Cowan, Edmondson, Evans, Feigenbaum, Holder, Nogueira-Martins, J. Palangian, R. Palangian, Vina, Whitlock*

*Adjunct Assistant Professors Bascom, Bendor-Samuel, Crowell, Deibler, Fleming, Franklin, Jackson, Kenyon, Larson, Lee, Lowe, McElhanon, McKinney, Myers, Overhoit, E. Pike, P. Pike, Shaw, Wendell, Yost*

### **Intensive Language Program**

Students with no previous experience or courses in a foreign language may choose to begin French, German, Portuguese, Spanish, or Russian by enrolling in the Intensive Program, and may complete Levels I, II, III, and IV of the chosen language in one semester or in two summer terms. The Intensive Program carries 14 credit hours and offers one of the most effective methods for learning a foreign language. Fourteen-hour intensive courses in French, Russian, and Spanish may be offered in fall semesters, German and Spanish in spring semesters, and Portuguese and Russian in the summer. Eight-hour intensive courses will occasionally be offered. The courses may be offered on campus and/or in the country of the respective language. Students must contact the instructor prior to registration to insure a place in these courses. Students are cautioned to take these courses prior to their senior year because of the possibility of enrollment limitations.

### **Advanced German Intensive Program**

Students with credit through Level IV or equivalent in German may complete GERM 3313 and 3314 in one summer session. The class meets for five weeks, from 8 a.m. to 12, Monday through Thursday, with speaking, writing, reading, and a variety of culturally-oriented activities to create a lively classroom setting.

### **The Language Laboratory**

The Department of Foreign Languages maintains a fully equipped language laboratory located on the second floor of Trimble Hall. The lab has 80 cassette positions, of which 40 are for listening only, while the other 40 also have record and playback capability. Lab attendance is required in all first-year courses in a modern foreign language. In these courses, an hour of credit is given for work done specifically in the language lab. A home study option is available, in that the lab technicians will be happy, at the request of students, to make copies of taped lessons onto tapes provided by the student. Use of the lab is recommended for all courses in modern foreign languages.

### **Credit by Examination**

Students wishing to earn credit by examination for any of the first four (1441, 1442, 2313, 2314) levels of French, German, Russian, or Spanish must present an official score received on one of two nationally administered examinations recognized by the department: (1) Advanced Placement Examination of the College Entrance Examination Board (CEEB), and (2) College Placement Test of the CEEB. At UTA the examinations will be administered by the Office of Counseling, Testing, and Career Placement on dates to be announced. To earn credit by examination at other levels or in other subject areas, students who have had the equivalent in knowledge or training of that level or subject may apply for a departmentally administered advanced standing examination.

### **Placement Examination**

Students wishing to determine for which course level of a language they should register may take the foreign language placement examination. The examination is administered in the department during the first week of each semester and also during freshman orientation in the summer. No credit hours are awarded for any course level the student places out of as a result of the placement exami-



## FOREIGN LANGUAGES AND LINGUISTICS

nation. However, successful completion of any of the first four (1441, 1442, 2313, 2314) levels of a foreign language by virtue of the placement examination can be applied toward the satisfaction of the foreign language requirement.

### Study Abroad

Students should give serious consideration to the unique learning experience of studying abroad. The department offers several opportunities for gaining credit while studying abroad. All arrangements must be made through the Department Study Abroad Advisor.

**SUMMER STUDY** — Regular programs are offered which provide opportunities for summer study in Austria, France, Germany, Spain, and the Soviet Union. Special programs may also be arranged for study with the American Institute for Foreign Study and the Center for Foreign Study.

**THE YEAR ABROAD** — In cooperation with Central College of Pella, Iowa, the American Institute for Foreign Study, and the Center for Foreign Study, the department offers one-year programs of study abroad in French, German, Spanish, and Russian. The year abroad begins with the summer semester each year and continues through the fall and spring. Semester programs are also available.

**I. THE YEAR IN FRANCE** — Up to 44 semester credit hours may be earned at the Sorbonne (the Division of Arts and Sciences) of the University of Paris.

**II. THE YEAR IN GERMANY AND AUSTRIA** — Up to 45 semester credit hours may be earned at the Goethe Institute in Munich and The University of Vienna.

**III. THE YEAR IN SPAIN** — Up to 45 semester credit hours may be earned at the Universities of Santiago, Granada, and Madrid.

### Course Descriptions

Each foreign language — French, German, Greek, Latin, Russian, Spanish, and Portuguese — has course designations 1441, 1442, etc. The student should check the language desired for the course description.

Native speakers, i. e., natives of a foreign country where the language is the official spoken one, may not enroll in courses numbered below 3000.

### FRENCH (FREN)

**1441. LEVEL I (3-2) 4 hours credit. \$2 lab fee.**

**1442. LEVEL II (3-2) 4 hours credit. Prerequisite: FREN 1441. \$2 lab fee.**

**2313. LEVEL III (3-0) 3 hours credit. Prerequisite: FREN 1442.**

**2314. LEVEL IV (3-0) 3 hours credit. Prerequisite: FREN 2313.**

Levels I, II, III and IV may be elected as one **intensive program** which permits the completion of **all four levels in one semester**. Students planning to enroll in this program must (1) arrange a conference with the instructor **prior to registration**; (2) register for section 001 for each level; and (3) enroll in no other courses during that semester except physical education. The intensive program may not be offered every semester. Students are cautioned to take these courses prior to their senior year because of the possibility of enrollment limitations. Levels I and II will occasionally be offered as mini-intensive courses.

**2315. SCIENTIFIC AND TECHNICAL FRENCH (3-0) 3 hours credit** — Techniques of rapid translation, designed for students who wish to make use of French source materials in their respective fields of study such as business, science, and engineering. Not open to French majors for credit. Prerequisite: FREN 1442 or equivalent.

**2391. INDEPENDENT STUDY (3-0) 3 hours credit** — By consent of the department only.

**3302. FRENCH LITERATURE IN TRANSLATION (3-0) 3 hours credit** — The works of major authors and intellectual trends of a given period. May be repeated for credit as topics or periods vary, but no more than three hours may be counted toward a degree in foreign language. Prerequisites: FREN 2314 and six hours of English. This course is also listed as ENGL 3302.

**3311. FRENCH LITERATURE AND CULTURE (3-0) 3 hours credit** — The main currents of French literature in relation to significant events in French political and social history from the Middle Ages through the 18th Century. Prerequisite: FREN 2314 with a grade of C or better; or a knowledge of the language and consent of the department.

**3312. FRENCH LITERATURE AND CULTURE (3-0) 3 hours credit** — The main currents of French literature in relation to significant events in French political and social history beginning with the 19th Century and concluding with brief introduction to the 20th Century. Prerequisite: FREN 2314 with a grade of C or better; or a knowledge of the language and consent of the department.

**3313. ADVANCED FRENCH GRAMMAR AND COMPOSITION (3-0) 3 hours credit** — A detailed study of French grammar with practice in composition; of special interest to students who wish to improve their skill in written French. Prerequisite: FREN 2314 with a grade of C or better, or consent of the department.

## FOREIGN LANGUAGES AND LINGUISTICS

- 3314. FRENCH PHONETICS** (3-0) 3 hours credit — An introduction to practical phonetics; of special interest to students who wish to improve their skill in pronunciation and comprehension. Prerequisite: FREN 2314 with a grade of C or better or consent of the department.
- 3315. ADVANCED FRENCH CONVERSATION** (3-0) 3 hours credit — Practice in oral expression with an introduction to practical phonetics and vocabulary building; of special interest to students who wish to improve their skill in pronunciation, comprehension, and oral expression. Credit will not be granted to native speakers. Prerequisite: FREN 2314 with a grade of C or better or consent of the department.
- 4314. ADVANCED FRENCH COMPOSITION** (3-0) 3 hours credit — Creative writing in French requiring original themes, essays, or research papers. Recommended for senior French majors with at least a B average. Enrollment limited. Prerequisite: FREN 3313 or equivalent.
- 4321. FRENCH LITERATURE OF THE SIXTEENTH CENTURY** (3-0) 3 hours credit — Literature of the French Renaissance and Baroque periods.
- 4322. THE SEVENTEENTH CENTURY** (3-0) 3 hours credit — The great French Classical Movement with emphasis on the major dramatists of the period.
- 4323. THE ENLIGHTENMENT** (3-0) 3 hours credit — The main trends of thought in the 18th Century with emphasis on novel, drama, and the political and social philosophers of the period.
- 4324. NINETEENTH CENTURY FRENCH POETRY** (3-0) 3 hours credit — Poetry from the romantic to and including the symbolist.
- 4325. FRENCH DRAMA OF THE NINETEENTH CENTURY** (3-0) 3 hours credit — The best plays of the century beginning with the melodrama and finishing with Cyrano de Bergerac.
- 4326. FRENCH NOVELS OF THE NINETEENTH CENTURY** (3-0) 3 hours credit — The main currents in the 19th Century novel, including the Romantic, Realistic, and Naturalistic schools.
- 4327. SYMBOLISM** (3-0) 3 hours credit — The Symbolist Movement in late 19th Century France.
- 4328. THE TWENTIETH CENTURY** (3-0) 3 hours credit — Course varies from semester to semester with emphasis on different periods or special genre.
- 4329. VOICES OF WOMEN IN FRENCH LITERATURE** (3-0) 3 hours credit — Study of works by prominent women writers from the Revolution to the present, including de Stael, Sand, Colette, Weil, de Beauvoir, Sagan, and Yourcenar.
- 4332. FRENCH FOR GRADUATE STUDENTS** (3-0) 3 hours credit — Designed for graduate students preparing for the foreign language reading examinations. The basic elements of grammar and syntax, with emphasis on rapid and accurate translation. May not be counted toward the fulfillment of the undergraduate language requirement. Students majoring or minoring in French may not take this course for credit.
- 4339. THE TEACHING OF FRENCH** (3-0) 3 hours credit — Problems, methods, and techniques specific to the teaching of the French language. Prerequisite: completion of two 3000 courses or consent of department. Required for teacher certification in French.
- 4391. CONFERENCE COURSE** 3 hours credit — Independent study in the preparation of a paper on a research topic and consultation with instructor on a regular basis. May be repeated for credit. Prerequisites: consent of the department and completion of or concurrent enrollment in a 3000 course.
- 4393. TEACHING PRACTICUM** (3-0) 3 hours credit — Independent study course for prospective teachers. Will provide supervised classroom teaching experience. A research paper on teaching will be required. May not be substituted for a language or literature course for French majors or minors. Prerequisite: consent of department.

## GERMAN (GERM)

Required courses for the major are GERM 3313, 3314, 4321, 4322. At least 12 additional hours are to be selected from any advanced level German courses other than 4331, 4332, 4339.

**1301. GERMAN FOR INTERNATIONAL TRADE AND COMMERCE — I** (3-0) 3 hours credit — Designed for persons interested in international business. Reading, translating, and writing German commercial and industrial texts and documents; intensive study of grammar, syntax, and specialized vocabulary and phraseology. May not be substituted for German levels I, II, III, IV.

**1302. GERMAN FOR INTERNATIONAL TRADE AND COMMERCE — II** (3-0) 3 hours credit — A continuation of GERM 1301. Advanced business writing and translating. Prerequisites: GERM 1301 or consent of instructor.

**1441. BEGINNING GERMAN I** (3-2) 4 hours credit — A multi-media, multi-method approach using films, television, mini-culture units, slides, and other instructional activities. **\$2 lab fee.**

**1442. BEGINNING GERMAN II** (3-2) 4 hours credit — Prerequisite: GERM 1441 or equivalent. **\$2 lab fee.**

**1462. LEVEL II** (3-2) 4 hours credit — Transition from the beginning skills gained in high school to the intermediate skills learned in college. Prerequisite: at least one year of high school German with a grade of A or B or appropriate score on the UTA placement test. (See College Credit by Examination of this Catalog.) **\$2 lab fee.**

**2313. BEGINNING GERMAN III** (3-0) 3 hours credit — Prerequisite: GERM 1442 or 1462 or equivalent.

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**2314. CONTINUING GERMAN (3-0)** 3 hours credit — Continuing practice in conversation, composition, and reading. Prerequisite: GERM 2313 or equivalent.

GERM 1441 through 2314 may be elected as one **intensive program** which permits the completion of **all four levels in one semester**. Students planning to enroll in this program must (1) arrange a conference with the instructor **prior to registration**; (2) register for section 001 of each level; and (3) enroll in no other courses during that semester except physical education. The intensive program may not be offered every semester. Students are cautioned to take these courses prior to their senior year because of the possibility of enrollment limitations.

**2315. SCIENTIFIC AND TECHNICAL GERMAN (3-0)** 3 hours credit — Techniques of rapid translation; designed for students who wish to make use of German source materials in their respective fields of study. Not open to German majors for credit. Prerequisite: GERM 1442 or equivalent.

**2391. INDEPENDENT STUDY (3-0)** 3 hours credit — By consent of the department only.

**3313. ADVANCED CONVERSATION AND COMPOSITION I (3-0)** 3 hours credit — Designed to develop reasonable fluency in spoken and written German. Discussion topics mainly from aspects of everyday life in today's Germany. Prerequisite: GERM 2314 with a grade of C or better, or permission of the instructor.

**3314. ADVANCED CONVERSATION AND COMPOSITION II (3-0)** 3 hours credit — Selected readings from current German texts and periodicals as points of departure for extensive oral and written work to broaden the student's knowledge of contemporary German. Prerequisite: GERM 2314 with a grade of C or better, or permission of the instructor.

**3317. THE GERMANIC HERITAGE (3-0)** 3 hours credit — The contribution of the Germanic-speaking peoples to Western literature and culture. Topics include the discovery of America by Norsemen, the exploits of the Vikings, the story of the Nibelungs and the Burgundians, the Faust legend.

**3318. CONTEMPORARY GERMAN CULTURE AND LITERATURE (3-0)** 3 hours credit — Literature and other cultural aspects of the German-speaking world (East and West Germany, Austria, Switzerland.)

**4313. THEMES AND GENRES IN GERMAN LITERATURE (3-0)** 3 hours credit — Themes such as the role of women, love, the occult, and the dehumanization of the individual, as well as readings in drama, prose, and poetry. May be repeated for credit. Prerequisite: completion of two 3000 courses or consent of the department.

**4314. TRENDS IN THE GERMAN LANGUAGE (3-0)** 3 hours credit — May be repeated for credit as topics change. Prerequisite: completion of two 3000 courses or consent of the department.

**4315. BUSINESS GERMAN (3-0)** 3 hours credit — Lexical items peculiar to business communication; a review of the basics of grammar and syntax; and the various stylistic features of business correspondence. Prerequisite: GERM 3313 and/or consent of the department.

**4317. ADVANCED COMMUNICATION SKILLS (3-0)** 3 hours credit — Practice in reading, writing, speaking, and auditory comprehension of contemporary German in situations which reflect attitudes and customs in German-speaking countries. Prerequisites: German 3313 and 3314 or consent of the department.

**4321. MASTERPIECES OF GERMAN LITERATURE I (3-0)** 3 hours credit — The emergence of modern German as a literary language and the development of thought and letters in early German literature to the end of the 18th Century. Prerequisite: completion of two 3000 courses or consent of the department. Required of all German majors.

**4322. MASTERPIECES OF GERMAN LITERATURE II (3-0)** 3 hours credit — A survey of thought and letters in the 19th and 20th Centuries. Prerequisites: completion of two 3000 courses or consent of the department. Required of all German majors.

**4331. GERMAN FOR GRADUATE STUDENTS I (3-0—3)** 3 hours credit — For graduate students preparing for the foreign language reading examinations. Basic elements of grammar and syntax, with emphasis on rapid and accurate translation. May not be counted toward the fulfillment of the undergraduate language requirement. Students majoring or minoring in German may not take this course for credit.

**4332. GERMAN FOR GRADUATE STUDENTS II (3-0)** 3 hours credit — A continuation of GERM 4331. May not be counted toward the fulfillment of the undergraduate language requirement. Students majoring or minoring in German may not take this course for credit.

**4339. THE TEACHING OF GERMAN (3-0)** 3 hours credit — Problems, methods, and techniques specific to the teaching of the German language. Prerequisite: completion of two 3000 courses or consent of department. Required for teacher certification in German.

**4391. CONFERENCE COURSE** 3 hours credit — Independent study in the preparation of a paper on a research topic; consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: consent of the department and completion of or concurrent enrollment in a 3000 course.

**4393. TEACHING PRACTICUM (3-0)** 3 hours credit — Independent study course for prospective teachers. Will provide supervised classroom teaching experience. A research paper on teaching will be required. May not be substituted for a language or literature course for German majors or minors. Prerequisite: consent of department.

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### GREEK (GREK)

1441. **LEVEL I** (3-2) 4 hours credit.  
1442. **LEVEL II** (3-2) 4 hours credit. Prerequisite: GREK 1441.  
2313. **LEVEL III** (3-0) 3 hours credit. Prerequisite: GREK 1442.  
2314. **LEVEL IV** (3-0) 3 hours credit. Prerequisite: GREK 2313.  
2391. **INDEPENDENT STUDY** (3-0) 3 hours credit — By consent of the department only.  
3333. **GREEK POETRY\*** (3-0) 3 hours credit — Greek epic and lyric poetry. Also listed as ENGL 3333. Credit will be granted for one of the courses only.  
3334. **GREEK DRAMA\*** (3-0) 3 hours credit — Greek tragedy and comedy. Also listed as ENGL 3334. Credit will be granted for one of the courses only.  
\*May not be counted as credit in a foreign language.

### LATIN (LATN)

1441. **LEVEL I** (3-2) 4 hours credit.  
1442. **LEVEL II** (3-2) 4 hours credit. Prerequisite: LATN 1441.  
2313. **LEVEL III** (3-0) 3 hours credit. Prerequisite: LATN 1442.  
2314. **LEVEL IV** (3-0) 3 hours credit. Prerequisite: LATN 2313.  
2391. **INDEPENDENT STUDY** (3-0) 3 hours credit — By consent of the department only.  
3337. **STUDIES IN LATIN LITERATURE\*** (3-0) 3 hours credit — Studies of major writers or of special topics such as Roman satire. Also listed as ENGL 3337. Credit will be granted for one of the courses only except that the course may be repeated for credit when the content changes.  
\*May not be counted as credit in a foreign language.

### PORTUGUESE (PORT)

1441. **LEVEL I** (3-2) 4 hours credit. Prerequisite: PORT 1441. **\$2 lab fee.**  
1442. **LEVEL II** (3-2) 4 hours credit. Prerequisite: PORT 1441. **\$2 lab fee.**  
2313. **LEVEL III** (3-0) 3 hours credit. Prerequisite: PORT 1442.  
2314. **LEVEL IV** (3-0) 3 hours credit. Prerequisite: PORT 2313.  
Levels I, II, III, and IV may be elected as one **intensive program** which permits the completion of **all four levels in one semester**. Students planning to enroll in this program must (1) arrange a conference with the instructor **prior to registration**; (2) register for section 001 of each level; and (3) enroll in no other courses during that semester except physical education. The intensive program may not be offered every semester. Students are cautioned to take these courses prior to their senior year because of the possibility of enrollment limitations.

3312. **BRAZILIAN LITERATURE AND CULTURE** (3-0) 3 hours credit — Brazilian literature in relation to significant events in Brazilian political and social history. Prerequisite: PORT 2314 with a grade of C or better, or a knowledge of the language and consent of the department.

4391. **CONFERENCE COURSE** 3 hours credit — Independent study in the preparation of a paper on a research topic; consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: consent of the department.

### RUSSIAN (RUSS)

1441. **LEVEL I** (3-2) 4 hours credit. **\$2 lab fee.**  
1442. **LEVEL II** (3-2) 4 hours credit. Prerequisite: RUSS 1441. **\$2 lab fee.**  
1451. **RUSSIAN TRANSLATION I** (3-2) 4 hours credit — Basic training in translating into English articles from contemporary Soviet journals and periodicals in the career fields of business, engineering, liberal arts, and the sciences. May be substituted for any one of the required courses at the Russian levels I, II, III or IV by arrangement with the department.  
1452. **RUSSIAN TRANSLATION II** (3-2) 4 hours credit — A continuation of RUSS 1451. Prerequisite: RUSS 1451 or consent of the instructor. May be substituted for any one of the required courses at the Russian levels I, II, III, or IV by arrangement with the department.  
2313. **LEVEL III** (3-0) 3 hours credit. Prerequisite: RUSS 1442.  
2314. **LEVEL IV** (3-0) 3 hours credit. Prerequisite: RUSS 2313.  
Levels I, II, III, and IV may be elected as one **intensive program** which permits the completion of **all four levels in one semester**. Students planning to enroll in this program must (1) arrange a conference with the instructor **prior to registration**; (2) register for section 001 of each level; and (3) enroll in no other courses during that semester except physical education. The intensive program may not be offered every semester. Students are cautioned to take these courses prior to their senior year because of the possibility of enrollment limitations.

2321. **RUSSIAN TRANSLATION** (3-0) 3 hours credit — Procedures and techniques for preparing for graduate degree reading examinations through the use of current Soviet source materials in the student's own field of specialization. Substitutes for RUSS 2313 in degree plans. Prerequisite: RUSS 1452 or 1442 or the consent of the instructor.

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**2322. RUSSIAN TRANSLATION (3-0) 3 hours credit** — A continuation of RUSS 2321. Practical translation work in the student's field of specialization is completed in conjunction with the Soviet and East European Center translation projects. The student will do computer-based research work and will be afforded the out-of-class option of becoming proficient with a Russian typewriter. Substitutes for RUSS 2314 in degree plans. Prerequisite: RUSS 2321 or consent of the instructor.

**2391. INDEPENDENT STUDY (3-0) 3 hours credit** — By consent of the department only.

**3301. RUSSIAN LITERATURE IN TRANSLATION (3-0) 3 hours credit** — The works of major Russian authors during the period from the beginning of Russian literature until the 1917 Revolution. The interrelationship of various literary movements and philosophies. Students receiving Russian credit will be required to compare selected translations with the original works. Prerequisite: permission of the department. Also listed as ENGL 3301; credit will not be granted for both.

**3306. SOVIET LITERATURE IN TRANSLATION (3-0) 3 hours credit** — The works of major Soviet authors from 1917 to the present against the background of unfolding social and political development in the USSR. May be repeated for credit as topics and periods vary. Students receiving Russian credit will be required to compare selected translations with the original works. Prerequisite: RUSS 2314 or equivalent and six hours of English. Also listed as ENGL 3306; credit will not be granted for both.

**3311. THE RUSSIAN WORLD (3-0) 3 hours credit** — The main current of Russian and Soviet literature in relation to significant events in Russian and Soviet political and social history from the Golden Age to the present. Prerequisite: RUSS 2314 or consent of the department.

**3312. THE RUSSIAN WORLD (3-0) 3 hours credit** — A continued study of the main events of Russian and Soviet literature in relation to significant events in Russian and Soviet political and social history from the Golden Age to the present. Prerequisite: RUSS 2314 with a grade of C or better; or a knowledge of the language and consent of the department.

**3317. EVOLUTION OF SLAVIC LITERATURE (3-0) 3 hours credit (Russian Area Course)** — The development of Slavic literature (e.g., Russian, Ukrainian, Polish, Czech, Slovak, Bulgarian, Serbo-Croatian) from its inception to the present time against a background of unfolding literary periods, schools, and movements. Correlation of the original version of the literature with the current accurate translations coupled with the portrayal of the attitudes of the people during the various historical settings. Prerequisites: a. Non-Russian Students — completion of six hours of freshman English. b. Russian Language Students — must have completed RUSS 2321 or equivalent for the course to count as a Russian course and will be required to compare selected translations with the original works.

**3321. ADVANCED RUSSIAN-TO-ENGLISH TRANSLATION (3-0) 3 hours credit** — Special translation techniques which analyze the syntax and morphology of Soviet publications. Prerequisites: four semesters of Russian or equivalent and permission of the department.

**3322. ADVANCED RUSSIAN-TO-ENGLISH TRANSLATION (3-0) 3 hours credit** — A continuation of RUSS 3321. Translation of technical material from Russian to English in conjunction with projects of the Soviet and East European Center. Prerequisites: four semesters of Russian or equivalent and permission of the department.

**3333. CONVERSATION (3-0) 3 hours credit** — Practice in oral expression with seminar-type question-and-answer periods, and practical assignments in the student's major or minor field. Credit will not be granted to native speakers. Prerequisite: RUSS 2314 or consent of the department.

**4181. RUSSIAN TRANSLATION LABORATORY PRACTICE (0-2) 1 hour credit** — To increase translation proficiency through the use of the tape recorder and the computer. Emphasis on coding Russian passages through the use of "Cyrilics" (Cyrillic coding system) and in giving rapid sight translations from Russian into English. Prerequisite: permission of the instructor. **\$2 lab fee.**

**4311. RUSSIAN AND SOVIET NON-ADAPTED LITERATURE AND PERIODICALS (3-0) 3 hours credit** — This course uses both Russian and Soviet literature and periodicals to improve knowledge of current Soviet life and language. Prerequisite: RUSS 3312 or consent of the department.

**4312. SELECTIONS FROM RUSSIAN AND CONTEMPORARY SOVIET LITERATURE AND PERIODICALS (3-0) 3 hours credit** — This course is a study of Russian literature as well as current periodicals and cultural documents of the Soviet Union. Prerequisite: RUSS 4311 or consent of the department.

**4321. ADVANCED ENGLISH-TO-RUSSIAN TRANSLATION (3-0) 3 hours credit** — Training in the most difficult type of translation for non-natives with attention to structure, composition, and form. Emphasizes the technique of technical professional translations. Prerequisite: RUSS 3322 and permission of the department.

**4322. ADVANCED ENGLISH-TO-RUSSIAN TRANSLATION (3-0) 3 hours credit** — A continuation of RUSS 4321, emphasizing speed and accuracy in translating scientific and technical works. Prerequisites: RUSS 3321 or 3322 and permission of the department.

**4332. RUSSIAN TECHNICAL AND SCIENTIFIC TRANSLATION (3-0) 3 hours credit** — An intensive service course designed primarily to prepare PhD candidates and other graduate students in the functional use of the Russian language. Emphasis on translating current, non-adapted Soviet publications by training the student to develop rapid translation techniques, approved short cuts,

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and an in-depth understanding of key grammatical concepts. Undergraduate students will be admitted only upon consent of the department.

**4333. RUSSIAN FOR INTERNATIONAL TRADE AND COMMERCE (3-0)** 3 hours credit — Designed for persons interested in international business. Reading, translating, and writing Russian commercial and industrial texts and documents; intensive study of grammar, syntax, and specialized vocabulary and phraseology. Prerequisite: RUSS 1451 or 4332 or equivalent.

**4339. THE TEACHING OF RUSSIAN (3-0)** 3 hours credit — Designed primarily for Russian majors or minors who desire to teach the language. The problems, methods, and techniques specifically related to teaching the Russian language to non-native speakers. Prerequisite: completion of two upper division courses or consent of the department. May not be substituted for a language or literature course for Russian majors or minors; recommended as an elective for prospective teachers.

**4359. HISTORY OF RUSSIA TO 1885 (3-0)** 3 hours credit — A survey of Russian history from the origins of the first Russian state through the reign of Nicholas I. Special attention to such topics as the Kievan Rus, the Mongol impact and Muscovite state, the rise of Imperial Russia, and Russia's emergence as a global power. Also listed as HIST 4359. Permission of the department required. For Russian credit, research will be required in Russian.

**4360. HISTORY OF RUSSIA SINCE 1885 (3-0)** 3 hours credit — A survey of Russian history from the reign of Alexander II to the present. Special attention to such topics as the decline of Imperial Russia, the rise of the revolutionary spirit, and the emergence, consolidation, and development of the Soviet state. Also listed as HIST 4360. Permission of the department required. For Russian credit, research will be required in Russian.

**4362. THE U.S.S.R. TODAY (3-0)** 3 hours credit — (Russian Area Course) Readings and lectures are based on Soviet and other newspapers, journals, books, and interviews with Soviet citizens and former citizens and others with knowledge about the Soviet Union. The metamorphosis of the Communist Party and the current political philosophy of the Soviet state. Also listed as HIST 4362 and POLS 4362; credit will be granted in only one area. The course will be taught in English, but for Russian language credit, research will be done in Russian. May be repeated for credit as topics change.

**4363. TOPICS ON THE SOVIET UNION (3-0)** 3 hours credit — Also listed as POLS 4363 and HIST 4363, but credit will be given in only one area. The history, government and activities of the Soviet Union compared with those of the United States as a basis for understanding the relationships between the two countries. Instruction is by film, lectures, and guest speakers from on and off campus. For Russian credit, research will be done in the Russian language. RUSS 4362 is recommended but not required as a prerequisite. May be repeated for credit as topics change.

**4364. THE SINO-SOVIET RELATIONSHIP (3-0)** 3 hours credit — The interaction of the People's Republic of China and the Union of Soviet Socialist Republics contrasting their recent history, philosophy, cultures, political systems, and applications of Marxist philosophy. For Russian credit, research will be done in the Russian language. This course is also listed as PHIL 4364, POLS 4364, and HIST 4364. Credit will be granted in only one area.

**4387. EVOLUTION OF COMMUNIST SYSTEMS (3-0)** 3 hours credit — The historical and philosophical development of communism from the era of Marx and Engels to the present. Philosophies of the principal molders of Soviet communism; the resulting national forms such as Maoism, Titoism, and Castroism; and a comparative analysis of the different systems. Also listed as HIST 4387, PHIL 4387, and POLS 4387, but credit will be given in only one area. Prerequisite: permission of the department. The course will be taught in English; but for Russian language credit, research will be done in Russian.

**4391. CONFERENCE COURSE** 3 hours credit — Independent study in the preparation of a paper or a translation on a research topic; consultation with instructor on a regular basis. May be repeated for credit. Prerequisite: consent of the department.

**4393. TEACHING PRACTICUM (3-0)** 3 hours credit — Independent study course for prospective teachers. Will provide supervised classroom teaching experience. A research paper on teaching will be required. May not be substituted for a language or literature course for Russian majors or minors. Prerequisite: consent of department.

## SPANISH (SPAN)

**1441. LEVEL I (3-2)** 4 hours credit. **\$2 lab fee.**

**1442. LEVEL II (3-2)** 4 hours credit. Prerequisite: SPAN 1441. **\$2 lab fee.**

**2303. SPANISH CONVERSATION (3-0)** 3 hours credit — Practice in oral expression with an introduction to practical phonetics and vocabulary building. Of special interest to students who wish to improve their skill in pronunciation, comprehension, and oral expression. Credit will not be granted to native speakers. Will not count toward the foreign language requirement.

**2313. LEVEL III (3-0)** 3 hours credit. Prerequisite: SPAN 1442.

**2314. LEVEL IV (3-0)** 3 hours credit. Prerequisite: SPAN 2313.

Levels I, II, III, and IV may be elected as one **intensive program** which permits the completion of **all four levels in one semester**. Students planning to enroll in this program must (1)

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arrange a conference with the instructor **prior to registration**; (2) register for section 001 of each level; and (3) enroll in no other courses during that semester except physical education. The intensive program may not be offered every semester. Students are cautioned to take these courses prior to their senior year because of the possibility of enrollment limitations. Levels I and II will occasionally be offered as mini-intensive courses.

**2315. SPANISH FOR SPANISH SPEAKERS OF THE SOUTHWEST** (3-0) 3 hours credit — Designed to improve the basic language skills of students from the Southwest with near-native ability in Spanish. May be substituted for SPAN 2314. Credit cannot be received for both 2314 and 2315. Prerequisite: SPAN 2313 or equivalent or consent of the department.

**2391. INDEPENDENT STUDY** (3-0) 3 hours credit — By consent of the department only.

**3301. SPANISH PHONETICS** (3-0) 3 hours credit — An introduction to practical phonetics. Especially recommended for students who plan to teach Spanish. A student may not receive credit for both SPAN 3313 (taught until 1972) and 3301.

**3302. HISPANIC LITERATURE IN TRANSLATION** (3-0) 3 hours credit — The works of major authors and intellectual trends of a given period. May be repeated for credit as topics or periods vary, but no more than three hours may be counted toward a degree in a foreign language. Prerequisites: SPAN 2314 and six hours of English. Also listed as ENGL 3302. Credit will be granted for one of the courses only.

**3303. ADVANCED SPANISH CONVERSATION** (3-0) 3 hours credit — Practice in oral expression with an introduction to practical phonetics and vocabulary building. Of special interest to students who wish to improve their skill in pronunciation, comprehension, and oral expression. Credit will not be granted to native speakers. Prerequisite: SPAN 2314 with a grade of C or better, or consent of the department. Generally offered in our summer programs in Spanish-speaking countries.

**3305. THE LANGUAGE OF HISPANIC MUSIC** (3-0) 3 hours credit — Studies in the language of popular music of the Hispanic world including the *corridos* of the American Southwest. Language and grammar within various musical-cultural contexts. Prerequisite: SPAN 2314 or consent of instructor.

**3306. HISPANIC DRAMA AND ORAL PRACTICE** (3-0) 3 hours credit — Designed to introduce selected plays which will be used as the basis for class skits and oral interpretation, possibly leading to public performance.

**3311. SPANISH CULTURE AND CIVILIZATION** (3-0) 3 hours credit — Spanish history with emphasis on cultural, intellectual, and artistic trends and existing social institutions and moral values. Prerequisite: SPAN 2314 with a grade of C or better, or a knowledge of the language and consent of the department.

**3312. SPANISH-AMERICAN CULTURE AND CIVILIZATION** (3-0) 3 hours credit — The evolution of Spanish-American society and culture as a background for its contemporary problems. Prerequisite: SPAN 2314 with a grade of C or better, or a knowledge of the language and consent of the department.

**3314. ADVANCED SPANISH GRAMMAR** (3-0) 3 hours credit — A detailed study of Spanish grammar. Prerequisite: SPAN 2314 with a grade of C or better, or consent of the department. Required for teacher certification in Spanish.

**3315. ADVANCED SPANISH COMPOSITION** (3-0) 3 hours credit — Practice in original composition. Of special interest to students who wish to improve their skill in written expression in Spanish. Prerequisite: SPAN 3314 or consent of the department. Required for teacher certification in Spanish.

**3318. SELECTED READINGS IN HISPANIC LITERATURE** (3-0) 3 hours credit — Selected Spanish and Spanish-American literary works in the different genres. Prerequisite: SPAN 2314 with a grade of C or better, or a knowledge of the language and consent of the department.

**4301. INTRODUCTION TO SPANISH LITERATURE** (3-0) 3 hours credit — Main currents of Spanish literature from the Middle Ages to the 18th Century. Prerequisite: completion of a 3000-level Spanish course or a knowledge of the language and consent of the department.

**4302. INTRODUCTION TO SPANISH LITERATURE** (3-0) 3 hours credit — Main currents of Spanish literature from the 18th Century to the present. Prerequisite: completion of a 3000-level Spanish course or a knowledge of the language and consent of the department.

**4303. INTRODUCTION TO SPANISH-AMERICAN LITERATURE** (3-0) 3 hours credit — Main currents of Spanish-American literature from the Colonial Period to the 19th Century before Modernism. Prerequisite: completion of a 3000-level Spanish course or a knowledge of the language and consent of the department.

**4317. CHICANO LITERATURE** (3-0) 3 hours credit — Mexican-American literature, with special attention to its social, cultural, and linguistic background.

**4318. MEXICAN LITERATURE** (3-0) 3 hours credit — Studies in Mexican fiction, poetry, drama, and literary essay.

**4320. THE GENERATION OF 1898** (3-0) 3 hours credit — Studies of the novel and essay of major writers such as Angel Ganivet, "Azorin", Unamuno, and Valle-Inclan. Implications of these writers' search for the essence of Spain. Their impact on following generations.

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- 4321. TWENTIETH CENTURY SPANISH DRAMA** (3-0) 3 hours credit — Selected readings in the 20th century theater. May include works of Benavente, Garcia Lorca, Casona, Buero, Sastre, and others. Some attention given to these dramatists' ideas on dramatic art.
- 4322. SPANISH POETRY SINCE THE GENERATION OF 1898** (3-0) 3 hours credit — Readings in the poetry of Antonio Machado, Juan Ramon Jimenez, Jorge Guillen, Pedro Salinas, and others. Traditions and innovation in these poets.
- 4323. THE SPANISH NOVEL AFTER THE CIVIL WAR** (3-0) 3 hours credit — Studies of the novels of Cela, Laforet, Delibes, Sanchez Ferlioso, Martin Santos, and others.
- 4324. CONTEMPORARY SPANISH AMERICAN NOVEL AND SHORT STORY** (3-0) 3 hours credit — Studies of the works of such writers as Borges, Cortazar, Garcia Marquez, Onetti, Donoso, Rulfo, Fuentes, Arreola, Vargas Llosa. May be repeated for credit as the topics vary.
- 4325. SPANISH AMERICAN POETRY SINCE MODERNISM** (3-0) 3 hours credit — Selected works of major poets such as Cesar Vallejo, Pablo Neruda and Octavio Paz.
- 4326. THE TWENTIETH CENTURY HISPANIC ESSAY** (3-0) 3 hours credit — Major essayists and their contributions to the understanding of modern Hispanic problems. Includes the literary criticism of Ortega and Unamuno, and the Spanish-Americans Borges, Mallea, Paz, Alfonso Reyes, or others.
- 4327. WOMEN IN HISPANIC LITERATURE** (3-0) 3 hours credit — The role of women in Hispanic society through the centuries, as reflected in the literary works of writers such as Garcilaso de la Vega, Zorrilla, Becquer, Ruben Dario, Mistral, Agustini, Storni.
- 4339. THE TEACHING OF SPANISH** (3-0) 3 hours credit — Designed primarily for Spanish majors wishing to teach the language. Problems, methods, and techniques specific to the teaching of the Spanish language. Prerequisite: completion of two upper division courses or consent of the department. Required for teacher certification in Spanish.
- 4391. CONFERENCE COURSE** (3) 3 hours credit — Independent study in the preparation of a paper on a research topic; consultation with instructor on a regular basis. May be repeated for credit. Prerequisites: consent of the department and completion of or concurrent enrollment in a 3000 course.
- 4393. TEACHING PRACTICUM** (3-0) 3 hours credit — Independent study course for prospective teachers. Will provide supervised classroom teaching experience. A research paper on teaching will be required. May not be substituted for a language or literature course for Spanish majors or minors. Prerequisite: consent of department.

## LINGUISTICS (LING)

- 3311. INTRODUCTION TO LINGUISTIC SCIENCE** Descriptive Linguistics (3-0) 3 hours credit — The nature of natural language analysis, the diversity of language features, variation in speech, and related topics, including an introduction to historical and comparative linguistics.
- 3312. INTRODUCTION TO LINGUISTIC SCIENCE: Historical and Comparative Linguistics** (3-0) 3 hours credit — Processes of the evolution of language and the methods of reconstruction to show a common origin of language groups.
- 3313. INTRODUCTION TO SYNTACTIC ANALYSIS** (3-0) 3 hours credit — Principles and techniques in the analysis of modern English sentence structure employing methods of both school (traditional) grammar and modern systematic (theoretical) grammar. Prerequisite: LING 3311 or permission of the instructor.
- 4313. INTRODUCTION TO ARTICULATORY PHONETICS** (3-0) 3 hours credit — The principles of the production of the various sounds of which the human vocal apparatus is capable. Extensive drill in producing and recognizing those sounds and recording them with phonetic symbols.
- 4314. INTRODUCTION TO PHONOLOGY** (3-0) 3 hours credit — The principles involved in the analysis of sound systems with extensive practice in the phonological analysis of hypothetical and actual language material.
- 4315. INTRODUCTION TO GRAMMAR** (3-0) 3 hours credit — Principles and techniques of the grammatical analysis of language.
- 4316. PROBLEMS IN GRAMMATICAL ANALYSIS** (3-0) 3 hours credit — Extensive practice in grammatical analysis using problems representing language types from many parts of the world.
- 4391. CONFERENCE COURSE** 3 hours credit — Independent study in the preparation of a paper on a research topic; consultation with instructor on a regular basis. May be repeated for credit. Prerequisites: consent of the department and completion of or concurrent enrollment in a 3000 course.

## COMPARATIVE LITERATURE (COML)

- 3320. RENAISSANCE AND BAROQUE LITERATURE** (3-0) 3 hours credit — Central literary currents in Western Europe from approximately 1500 to 1650, with emphasis on the Humanistic spirit. Also listed as ENGL 3320. Credit will be granted for one of the courses only, except that the course may be repeated for credit when the content changes.
- 3324. LITERATURE OF THE NINETEENTH CENTURY** (3-0) 3 hours credit — Nineteenth century movements central to the Western literary tradition. Also listed as ENGL 3324. Credit will be



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granted for one of the courses only, except that the course may be repeated for credit when the content changes.

**3327. PRINCIPLES OF LITERARY CRITICISM** (3-0) 3 hours credit — The writings of major literary critics from Aristotle to the present. Also listed as ENGL 3327. Credit will be granted for one of the courses only.

**3328. PRINCIPLES OF LITERARY CRITICISM** (3-0) 3 hours credit — Modern literary criticism with emphasis on the practical applications of the methods studied. Also listed as ENGL 3328. Credit will be granted for one of the courses only.

### ENGLISH AS A FOREIGN LANGUAGE (EFL)

**1341. ENGLISH AS A FOREIGN LANGUAGE** (3-0) 3 hours credit — For students who do not have a native speaker's command of the English language. Composition and grammar (formal sentence structure and irregularities in the linguistic system). May be substituted for ENGL 1301.

**1342. ENGLISH AS A FOREIGN LANGUAGE** (3-0) 3 hours credit — A continuation of EFL 1341. May be substituted for ENGL 1302. Prerequisite: EFL 1341 or ENGL 1301.

### FOREIGN LANGUAGE (FORL)

**1301. CULTURAL INTRODUCTION TO LANGUAGES** (3-0) 3 hours credit — A survey of several languages and cultures, complemented by guest speakers and multi-media presentations. Among the languages presented are French, German, Portuguese, Russian, and Spanish.

**4301. LANGUAGE ACQUISITION AND DEVELOPMENT** (3-0) 3 hours credit — Students will acquire knowledge of how language is acquired by a child and what significance this has for the learning of the child with limited English-speaking ability.

**4302. TEACHING ENGLISH AS A SECOND OR FOREIGN LANGUAGE** (3-0) 3 hours credit — Methods of teaching English language skills to speakers of other languages. Linguistic, psychological and socio-cultural factors in second language learning. Emphasis on aural comprehension, speaking, reading and writing. Attention to selection of appropriate teaching and testing materials. Prerequisite: FORL 4301 or an introductory linguistics course or permission of instructor. Students in the bilingual endorsement or specialization program must complete FORL 4301.



# General Studies: INTERDISCIPLINARY PROGRAMS

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Students with interdisciplinary interests and unique academic and vocational goals may choose the Bachelor of General Studies Program. In the BGS Program the student may select various course offerings from existing departmental programs in any college in the University to create an individualized degree plan relevant to his/her goals. Applications for admission to the BGS Program are available in the Office of the Dean, College of Liberal Arts. The student, in filing this application, will describe academic and vocational interests and, with the approval of the Program Director and departmental advisors, develop a degree plan. The approved degree plan, the transcript, and the diploma will carry the designation Bachelor of General Studies.

The BGS Program includes those requirements established for the Bachelor of Arts Degree, an area of concentration, and elective courses.

## REQUIREMENTS FOR A BACHELOR OF GENERAL STUDIES DEGREE

<b>English:</b>	1301, 1302, and six hours of literature.
<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent, 2314.
<b>History:</b>	1311, 1312, or six hours of other U.S. history or three hours of U.S. and three hours of Texas history.
<b>Mathematics:</b>	Six hours.
<b>Political Science:</b>	2311, 2312.
<b>Science:</b>	12 hours, six of which must be in the same science with lab.
<b>Electives:</b>	Sufficient hours to complete the total required for the degree.
<b>AREA OF CONCENTRATION:</b>	The area of concentration consists of courses selected by the student in consultation with the advisor(s) which focus on the student's unique academic and/or vocational interests. A minimum of 36 hours is required for the area of concentration, of which at least 18 must be advanced; no more than 18 hours, in addition to the General Requirements, may be selected from any one discipline.
<b>Total:</b>	128 hours, at least 36 of which must be advanced, plus physical education, military science or marching band as required.

# The Department of HISTORY

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The study of history explores the basic forces that have shaped human affairs and is therefore a means for dealing with present concerns and future problems. An appreciation of our heritage develops a sense of our identity. Historical inquiry also provides the necessary background for the study of other disciplines such as economics, literature, art, language, and the social as well as natural sciences.

Students of history develop important critical skills that are the hallmark of educated individuals: the ability to reason and analyze; the capacity to investigate problems and synthesize diverse information; the facility to express ideas or data clearly and precisely. The History Department encourages an open and questioning attitude toward the diversity of human experiences and ideas. An awareness of cultural differences between various groups of people will provide insights concerning the basic issues of world civilization. Students of history are encouraged to read analytically, speak cogently, and write coherently.

Both the curriculum and the methodology of the History Department are multifaceted. The History Department, therefore, requires that students take courses in both chronological and topical areas in United States and world history. The history faculty specializes in such diverse methodologies as quantitative analysis, and the new social and political history, as well as the more traditional biographical and narrative approaches. This exposes students to the many ways of studying the past and the present.

A degree in history prepares students for a variety of careers, including teaching, archival administration, business, journalism and communications, historical preservation, law, and public affairs. More importantly, by providing an insight into the causes and effects of change in society, a knowledge of history prepares every individual for life in a complex world.



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### REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN HISTORY

<b>Anthropology, Art, Economics, or Philosophy:</b>	Any six-hour sequence from the following: ANTH 1306 plus three additional hours in Anthropology, or ART 1309 and 1310 or ECON 2305 and 2306, or PHIL 2301 and 2302.
<b>English:</b>	1301, 1302, and six hours of literature.
<b>Political Science:</b>	2311, 2312.
<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent, 2314.
<b>Mathematics:</b>	Six hours.
<b>Science:</b>	12 hours of science, six of which must be in one science with laboratory.
<b>Electives:</b>	Sufficient to give the total number of hours required for a degree.
<b>Major:</b>	1311, 1312. (Students with a satisfactory SAT achievement score in American history or other proof of a strong background in American history may wish to enroll in an honors section or opt to substitute six hours of advanced courses in American history.) 2310, 2302, (or 2313, 2314 for pre-law majors).
<b>Core (Required):</b>	Three hours from 3300, 4389, or 4394. (Students receiving certification for teaching at the secondary level must substitute 4389 for 3300. 4394 restricted to honors students.) <b>It is strongly recommended that history majors complete the core requirement before enrolling in upper level history courses.</b>
<b>Core (Advanced):</b>	21 hours from the following groups, with at least three hours from each: <b>Group A-I — Chronological, U.S. History</b> 3321, 3322, 3323, 3324, 3325, 3328, 3330, 3334, 3342. <b>Group A-II — Chronological, World History</b> 3374, 3375, 3376, 3377, 3378, 3379, 4346, 4347, 4348, 4349, 4354, 4355, 4357, 4358, 4359, 4360, 4365, 4366, 4367. <b>Group B-I — Topical and Regional, U.S. History</b> 3346, 3347, 3348, 3349, 3352, 3353, 3354, 3355, 3356, 3357, 3358, 3359, 3360, 3361, 3362, 3363, 3364, 3365, 3366, 3367, 3368, 3369, 3370, 3371, 3372, 3373. <b>Group B-II — Topical and Regional, World History</b> Europe: 3382, 3383, 3384, 3385, 3386, 3388, 4384, 4385, 4387. Britain: 4350, 4351, 4352. Russia: 4361, 4362, 4363, 4364. Latin America: 4368, 4360. Africa: 4374, 4375. Asia: 4378, 4379, 4382. (NOTE: 3381, 3389, 3390, 4301, 4388, 4391 may be used for credit in either U.S. or World history depending on the subject.) 18 hours at least six of which shall be advanced.
<b>Minor:</b>	
<b>Total:</b>	128 hours, at least 36 of which must be advanced, plus physical education or military science or marching band as required.

### BACHELOR OF ARTS DEGREE IN HISTORY

All history majors in consultation with their advisor will design an appropriate course of upper level study in history.

**Suggested Course Sequence:**

**FRESHMAN YEAR**

**First Semester:** ENGL 1301; Foreign Language 1441; Mathematics, 3 hours; HIST 2301; \*HIST 1311 or Elective, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 17 hours.

**Second Semester:** ENGL 1302; Foreign Language 1442; Mathematics, 3 hours; HIST 2302, \*HIST 1312 or Elective, 3 hours; Physical Education or Military Science — Total Credit 17 hours.

\*The Department of History strongly recommends that HIST 1311 and 1312 be taken during the freshman year, along with HIST 2301 and 2302.

**SOPHOMORE YEAR**

**First Semester:** English (2000 literature course), 3 hours; Foreign Language, 3 hours; Science, 3 or 4 hours; POLS 2311; \*HIST 1311 or Elective, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 16 or 18 hours.

**Second Semester:** English (2000 literature course), 3 hours; Foreign Language, 3 hours; Science, 3 or 4 hours; POLS 2312; \*HIST 1312 or Elective, 3 hours; Physical Education or Military Science — Total Credit 16 to 18 hours.

\*The Department of History strongly recommends that HIST 1311 and 1312 be taken during the freshman year, along with HIST 2301 and 2302.

**JUNIOR YEAR**

**First Semester:** Science, 3 or 4 hours; ANTH 1306, or ART 1309, or ECON 2305, or PHIL 2301; History (a 3000 or 4000 course), 6 hours; Minor (a 3000 or 4000 course), 3 hours — Total Credit 15 or 16 hours.

**Second Semester:** Science, 3 or 4 hours; Anthropology (a 3000 or 4000 course), 3 hours, or ART 1310 or ECON 2306, or PHIL 2302; History (a 3000 or 4000 course), 6 hours; Minor, (a 3000 or 4000 course), 3 hours — Total Credit 15 or 16 hours.

**SENIOR YEAR**

**First Semester:** History 3000 or 4000, 3 hours; Electives, 12 hours — Total Credit 15 hours.

**Second Semester:** History 3000 or 4000, 3 hours; Electives, 12 hours — Total Credit 15 hours.

**BACHELOR OF ARTS DEGREE IN HISTORY  
(Teacher Certification Option — Elementary)\***

**ACADEMIC FOUNDATIONS:**

- English:** 1301, 1302, and six hours of literature.
- Foreign Language:** 1441, 1442, 2313, or equivalent, and 2314.
- Political Science:** 2311, 2312.
- History:** 1311, 1312.
- Mathematics:** Six hours.
- Science:** 12 hours, six in one science with laboratory.

**Area of Specialization**

24 hours (with at least 12 advanced hours) to include 2301, 2302, and nine semester hours from each of Group A and Group B. Students must also take 1311 and 1312 within academic foundations.\*\*

Group A — United States History\*\*\*

- 3321, 3322, 3323, 3324, 3325, 3328, 3330, 3334, 3342, 3346, 3347, 3348, 3349, 3352, 3353, 3354, 3355, 3356, 3357, 3358, 3359, 3360, 3361, 3362, 3363, 3364, 3365, 3366, 3367, 3368, 3369, 3370, 3371, 3372, 3373, 4301.

Group B — World History

- 2313, 2314, 3374, 3375, 3376, 3377, 3378, 3379, 3381, 3382, 3383, 3384, 3385, 3386, 3388, 3389, 4346, 4347, 4348, 4349, 4350, 4351, 4352, 4354, 4355, 4357, 4358, 4359, 4360, 4361, 4362, 4363, 4364, 4365, 4366, 4367, 4368, 4370, 4374, 4375, 4378, 4379, 4382, 4384, 4385, 4387, 4388.

\*\*30 hours of education courses required. See Education section of catalog.

\*\*12 hours of combination of courses required. See History Advisor.

\*\*\*Completion of either HIST 3363 or 3364 is recommended for those planning to teach in Texas schools.

## HISTORY

### BACHELOR OF ARTS DEGREE IN HISTORY (Secondary Teacher Certification Option — Social Studies Composite)

<b>English:</b>	1301, 1302, and six hours of literature.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent, and 2314.
<b>Mathematics:</b>	Six hours.
<b>Science:</b>	12 hours of science, six of which must be in one science with laboratory.
<b>Major:</b>	24 hours, to include 2301, 2302, 4389, plus nine semester hours from Group A and six semester hours from Group B.*
<b>Social Studies:</b>	24 hours, to include ANTH 1306 and 3343**, ECON 2305 and 2306, plus six advanced hours of political science and six advanced hours of sociology.
<b>Electives:</b>	Six hours.
<b>Education:</b>	12 hours as follows: 3310, 4311, 4312 and three hours from 3301, 3302, 3305, 3320, 4320, 4325, 4328.
<b>Student Teaching:</b>	EDUC 4650.
<b>Total:</b>	128 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

#### Group A — United States History

3321, 3322, 3323, 3324, 3325, 3328, 3330, 3334, 3342, 3346, 3347, 3348, 3349, 3352, 3353, 3354, 3355, 3356, 3357, 3358, 3359, 3360, 3361, 3362, 3363, 3364, 3365, 3366, 3367, 3368, 3369, 3370, 3371, 3372, 3373, 4301.

#### Group B — World History

3374, 3375, 3376, 3377, 3378, 3379, 3381, 3382, 3383, 3384, 3385, 3386, 3388, 3389, 4346, 4347, 4348, 4349, 4350, 4351, 4352, 4354, 4355, 4357, 4358, 4359, 4360, 4361, 4362, 4363, 4364, 4365, 4366, 4367, 4368, 4370, 4374, 4375, 4378, 4379, 4382, 4384, 4385, 4387, 4388.

\* Completion of either HIST 3363 or 3364 is recommended for those planning to teach in Texas secondary schools.

\*\* ANTH 3343 is a course entitled Ecological and Cultural Geography.

**BACHELOR OF ARTS DEGREE IN HISTORY  
(Secondary Teacher Certification Option—  
Basic History Degree)**

<b>Anthropology, Sociology, Economics, Philosophy, Art:</b>	Any six-hour sequence from the following: ANTH 1306 plus three additional hours in anthropology; ART 1309 and 1310; ECON 2305 and 2306; or PHIL 2301 and 2302.
<b>English:</b>	1301, 1302, and six hours of literature.
<b>Political Science:</b>	2311, 2312.
<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent, and 2314.
<b>Mathematics:</b>	Six hours.
<b>Science:</b>	12 hours of science, six of which must be in one science with laboratory.
<b>Electives:</b>	Sufficient to give the total number of hours required for a degree.
<b>Major:</b>	36 hours to include 1311, 1312, 2301, 2302, 4389, and 21 additional advanced hours; six of the advanced hours must be in U.S. (Group A) and six hours in World (Group B) History courses. * (See Social Studies Composite for listing.)
<b>Minor:</b>	Second teaching field — 24 hours minimum (at least 12 hours must be advanced) — varies with department.
<b>Education:</b>	12 hours as follows: 3310, 4311, 4312, and three hours from 3301, 3302, 3305, 4320, 4328.
<b>Student Teaching:</b>	EDUC 4650.
<b>Total:</b>	128 hours, at least 36 of which must be advanced, plus physical education or military science or marching band as required.

\*Completion of either HIST 3363 or 3364 is recommended for those planning to teach in Texas secondary schools.



## HISTORY

### BACHELOR OF ARTS DEGREE IN HISTORY (Pre-Law Option)

<b>English:</b>	1301, 1302, six hours of literature.
<b>Political Science:</b>	2311, 2312.
<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent, and 2314.
<b>Mathematics:</b>	Six hours, 1302 recommended.
<b>Science:</b>	12 hours, six of which must be in one science with laboratory.
<b>Business Administration, Philosophy, Political Science, and Speech:</b>	12 hours total; three hours each of: BUSA 3311 or 3312, PHIL 1301 or 2311, POLS 4311 or 4332, SPCH 0185* or 1301 or 3305.
<b>Major:</b>	30 hours, 18 hours advanced, to include 1311, 1312, 2313, 2314, 3300, 3353, 4350, and nine additional advanced hours.
<b>Minor:</b>	18 hours, at least six advanced, in business administration, economics, philosophy, or political science.
<b>Electives:</b>	12 hours; a list of recommended courses will be made available by History Department advisors to potential and enrolled pre-law students.
<b>Total:</b>	122 hours, at least 36 of which must be advanced, plus physical education or marching band or military science as required.

\*Course may be repeated for credit.

### REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN HISTORY (Minority Studies Option)

Students selecting this option will be expected to work closely with faculty advisor, appointed during their first year, in choosing a program. All requirements for the regular history degree must be fulfilled as well as the following additional requirements:

<b>Major:</b>	HIST 1311, 1312, 2301, 2302, 3300, 3362, 3365, 3366, 3367, 3368, 3369, 4390, and three additional advanced hours.
<b>English:</b>	2323*, 4316, 4336*
<b>Electives:</b>	At least nine hours from POLS 3305, 4320; PSYC 3301, 3315; SOCI 3333, 4310, 4323, 4333; or from other courses approved by the faculty advisor.

\*Offered as a special section; students should consult the Department of English for the correct section number.

## HISTORY (HIST)

*Acting Chairman: Associate Professor Palmer*

*Professors Chester, Green, Kerr, Lackman, Lackner, McLean, Myres, Philp, Rodnitzky, Smith*

*Associate Professors Bock, Knox, Palmer, Reinhartz, Richmond, Stark, Tucker*

*Assistant Professors Anders, Anguizola, Glymph, Goldberg, Kushma, Maizlish, Moch, Prewitt, Underwood*

**1311. HISTORY OF THE UNITED STATES (3-0)** 3 hours credit — An introduction to the political, social, economic, and cultural history of the United States prior to 1865. This course is designed to help students understand and evaluate their society, comprehend the historical experience, and further develop reading and writing competencies and critical skills. Formerly listed as 2311. Credit cannot be received for both 2311 and 1311.

**1312. HISTORY OF THE UNITED STATES (3-0)** 3 hours credit — An introduction to the political, social, economic, and cultural history of the United States since 1865. This course is designed to help students understand and evaluate their society, comprehend the historical experience, and further develop reading and writing competencies and critical skills. Formerly listed as 2312. Credit cannot be received for both 2312 and 1312.

**2301. HISTORY OF CIVILIZATION (3-0)** 3 hours credit — Significant developments from pre-historic times through the 16th Century. Special emphasis given to the rise and decline of the great civilizations, relating the experiences of the past to the problems of the present. A general introduction to the liberal arts. Required of all history majors except pre-law majors, who must substitute HIST 2313. Formerly listed as 1301. Credit cannot be received for both 2301 and 1301.



**2302. HISTORY OF CIVILIZATION (3-0)** 3 hours credit — Major modern trends, ranging from the growth of industrialism, nationalism, imperialism, socialism, and others to the more complex problems and conflicts of the present century. Particular attention to the emergence of a global civilization. Required of all history majors except pre-law majors, who must substitute HIST 2314. Formerly listed as 1302. Credit cannot be received for both 2302 and 1302.

**2313. HISTORY OF ENGLAND (3-0)** 3 hours credit — The history of Britain from prehistoric times to 1688. The development of English laws and institutions. Required of all pre-law majors. Formerly listed as 1313. Credit cannot be received for both 2313 and 1313.

**2314. HISTORY OF ENGLAND (3-0)** 3 hours credit — British history from 1688 to the present. The growth of English laws and institutions. Required of all pre-law majors. HIST 2313 is not a prerequisite for this course. Formerly listed as 1314. Credit cannot be received for both 1314 and 2314.

**There is no distinction between 3000- and 4000-level courses in history. The prerequisite for all of the following courses is six hours in social science. It is strongly recommended that history majors complete the core requirements before enrolling in upper level history courses.**

**3300. APPROACHES TO THE STUDY OF HISTORY (3-0)** 3 hours credit — Introduction to the theories and history of the discipline, the varieties of specialties within the field, and methods and problems of historical research. Required for history majors. Formerly listed as 4390.

**3321. COLONIAL AMERICA TO 1763 (3-0)** 3 hours credit — The beginnings of colonization in North America; the development of colonies and their political, social, economic, and cultural aspects; and the international ramifications culminating in the Great War for the Empire and the Treaty of Paris in 1763.

**3322. REVOLUTIONARY AMERICA, 1763-1789 (3-0)** 3 hours credit — The imperial crisis following the Great War for the Empire; the American Revolution; the beginnings of the United States; the Articles of Confederation; the making and ratification of the United States Constitution in 1787-1789; and the entire revolutionary period in its social, economic, military, and cultural aspects.

**3323. THE NEW NATION, 1789-1844 (3-0)** 3 hours credit — The development of the national government, the party system, the market economy, and reform movements from Jefferson through Jackson. The birth of modern American society and personality, with special emphasis on changing views of man, community, and society.

**3324. ERA OF SECTIONAL CONFLICT, 1820-1860 (3-0)** 3 hours credit — Sectional conflict in the United States from the Missouri Compromise of 1820 to the election of Abraham Lincoln in 1860. Southern separatism, slavery as a political issue, the antislavery movement, the breakup of the national political system, and the failure of sectional compromise.

**3325. CIVIL WAR AND RECONSTRUCTION, 1850-1876 (3-0)** 3 hours credit — The background and causes of secession and the Civil War, the organization of the Confederate States of America, the progress of the war, and the attempts to solve the racial, social, political, and economic problems of the post-war period.

**3328. HISTORY OF THE UNITED STATES, 1876-1900 (3-0)** 3 hours credit — The emergence of industrial America between the Reconstruction Era and 1900; the rise of business, organized labor, populism, and the emergence of the United States as a world power. Formerly listed as 4320. Credit cannot be received for both 4320 and 3328.

**3330. HISTORY OF THE UNITED STATES, 1900-1920 (3-0)** 3 hours credit — Local, state, and national programs of reform after 1900, the continued growth and change of the economy, and America's increasing participation in world affairs, culminating in its participation in World War I. Formerly listed as 4321. Credit cannot be received for both 4321 and 3330.

**3334. HISTORY OF THE UNITED STATES, 1920-1945 (3-0)** 3 hours credit — The technological revolution of the 1920s, the Great Depression, and World War II. Formerly listed as 4316. Credit cannot be received for both 4316 and 3334.

**3342. CONTEMPORARY AMERICA, 1945-PRESENT (3-0)** 3 hours credit — Special topics: the origins of the Cold War, the problem of loyalty in a democratic nation, the Vietnam conflict, the Fair Deal and Great Society, the Civil Rights Movement, student unrest and the growth of the New Left, and the impact of Richard Nixon and subsequent presidents on American politics. Formerly listed as 4317. Credit cannot be received for both 4317 and 3342.

**3346. SOCIAL AND INTELLECTUAL HISTORY OF THE UNITED STATES TO THE CIVIL WAR (3-0)** 3 hours credit — Leading American thinkers and their influence on American thought and society, particularly Puritanism, the Enlightenment, and the rise of democracy. Formerly listed as 4329. Credit cannot be received for both 4329 and 3346.

**3347. SOCIAL AND INTELLECTUAL HISTORY OF THE UNITED STATES, 1860-PRESENT (3-0)** 3 hours credit — Major ideas and social movements in America since 1860, with particular emphasis on those aspects of American thought which continue to agitate contemporary society. Formerly listed as 4330. Credit cannot be received for both 4330 and 3347.

**3348. HISTORY OF AMERICAN FOREIGN RELATIONS, 1775-1913 (3-0)** 3 hours credit — American foreign relations from the Revolution to the outbreak of World War I. Four topics will be explored in depth: the problems of the young republic in conducting foreign policy; the acquisition of

## HISTORY

continental empire; the rise of the United States to Great Power status: the acquisition and rule of overseas empire. Formerly listed as 4307. Credit cannot be received for both 4307 and 3348.

**3349. HISTORY OF AMERICAN FOREIGN RELATIONS, 1913- PRESENT** (3-0) 3 hours credit — American diplomacy from the outbreak of World War I to the present. American entry into the two World Wars; the Vietnam quagmire; American relations with the Soviet Union, China, and the Middle East. Formerly listed as 4308. Credit cannot be received for both 4308 and 3349.

**3352. HISTORY OF LABOR IN AMERICA** (3-0) 3 hours credit — Free and bound labor in the colonial period, labor participation in politics and reform movements, the evolution of unions, and achievements and problems in the modern labor movements. Formerly listed as 3331. Credit cannot be received for both 3331 and 3352.

**3353. AMERICAN CONSTITUTIONAL AND LEGAL HISTORY** (3-0) 3 hours credit — Relationships among the Constitution, the law, the political process, the legal profession, public opinion, and the personality of judges in American history. Formerly listed as 3329. Credit cannot be received for both 3329 and 3353.

**3354. AMERICAN CONSERVATISM** (3-0) 3 hours credit — Will examine both literature (political theory) and practice (political parties). The European antecedents of American conservatism, the metamorphosis which it has undergone over the years, and its relationship to conservative movements today outside the United States. The development of conservatism in Texas.

**3355. HISTORY OF AMERICAN POLITICAL PARTIES** (3-0) 3 hours credit — The nature and development of American political institutions, including political parties, pressure groups, public opinion, and the electoral system. Formerly listed as 3327. Credit cannot be received for both 3327 and 3355.

**3356. MILITARY HISTORY OF THE UNITED STATES** (3-0) 3 hours credit — U.S. military history from the colonial period to the present. The role of the military establishment in the nation, the historical evolution of its organization, and the basic strategic and tactical concepts which it has employed. (This course, with MILS 0180, a one-hour leadership laboratory, satisfies requirements for MILS 2242. Credit cannot be received for both HIST 3356 and MILS 2242.) Formerly listed as 3326. Credit cannot be received for both 3326 and 3356.

**3357. THE EARLY FRONTIER** (3-0) 3 hours credit — The clash of empires and the patterns of exploration and settlement from the Atlantic Coast to the Mississippi River. Indian-white relations and the development of cultural, social, and political life on the early frontier. Formerly listed as 4340. Credit cannot be received for both 4340 and 3357.

**3358. THE LATER FRONTIER** (3-0) 3 hours credit — American settlement west of the Mississippi River through the close of the frontier. Exploration, the fur trade, mining, the cattle industry, Indian relations, and the role of the West in U.S. foreign affairs. Formerly listed as 4341. Credit cannot be received for both 4341 and 3358.

**3359. THE NEW SOUTH** (3-0) 3 hours credit — The evolution of southern society, agrarian politics, relationships with other sections, industrial growth, and new leadership during the late 19th Century and the 20th Century. Formerly listed as 4318. Credit cannot be received for both 4318 and 3359.

**3360. TWENTIETH CENTURY AMERICAN CULTURAL HISTORY** (3-0) 3 hours credit — The development of mass culture in 20th Century America. The rise and social effects of popular culture, especially radio, film, television, advertising, and popular music. Formerly listed as 3310. Credit cannot be received for both 3310 and 3360.

**3361. THE UNITED STATES IN VIETNAM, 1945-1975** (3-0) 3 hours credit — American involvement in the Indochinese conflict. The nature of Vietnamese nationalism; Green Berets, the Americanization of the war under LBJ; B-52's; the anti-war movement; diplomatic negotiations; and American withdrawal.

**3362. UNITED STATES URBAN HISTORY** (3-0) 3 hours credit — The rise of the city from colonial times to the present focusing on the economic base of urban expansion, the human ingredients, the social and cultural scene, the pattern of urban politics, urban services, municipal administration, and the image of the city in popular thought. Formerly listed as 4319. Credit cannot be received for both 4319 and 3362.

**3363. TEXAS AND THE SPANISH SOUTHWEST** (3-0) 3 hours credit — The multi-cultural heritage of Texas with emphasis on pre-Columbian Amerind cultures and the history and development of Spanish and Mexican institutions as well as Anglo-American colonization. A regional rather than local interpretation. Completion of either HIST 3363 or 3364 is recommended for those planning to teach in Texas secondary schools. Formerly listed as 3307. Credit cannot be received for both 3307 and 3363.

**3364. HISTORY OF TEXAS SINCE 1845** (3-0) 3 hours credit — The state of Texas since its annexation. Social development, political events, and the rise of industry and labor. Completion of either HIST 3363 or 3364 is recommended for those planning to teach history in Texas secondary schools. Formerly listed as 3308. Credit cannot be received for both 3308 and 3364.

**3365. AFRO-AMERICAN HISTORY TO 1865** (3-0) 3 hours credit — History of blacks in America from their African origins to 1865. Emphasis on early African society, American slavery, and the development of black institutions and culture in the U.S. Formerly listed as 3338. Credit cannot be received for both 3338 and 3365.

- 3366. AFRO-AMERICAN HISTORY, 1865-PRESENT** (3-0) 3 hours credit — Emphasis on the transition from slavery to freedom, the political, social, and economic status of blacks in the late 19th Century, 20th Century black institutions and culture, and the evolution of the civil rights movements. Formerly listed as 3399. Credit cannot be received for both 3399 and 3366.
- 3367. AMERICAN INDIAN HISTORY** (3-0) 3 hours credit — Representative Indian tribes within the continental limits of the United States from pre-history to the contemporary period. Special topics: tribal cultures, the impact of European contact, and the colonial and United States Indian policies. Formerly listed as 4322. Credit cannot be received for both 4322 and 3367.
- 3368. THE HISTORY OF THE MEXICAN AMERICAN** (3-0) 3 hours credit — The role of the Mexican-American in the cultural and historical development of the United States with special emphasis on the Southwest. Formerly listed as 3309. Credit cannot be received for both 3309 and 3368.
- 3369. HISTORY OF THE AMERICAN WOMAN** (3-0) 3 hours credit — The social condition of women in America from colonial times to the present. The various feminist movements from the earliest women's rights crusades to the contemporary women's liberation organizations. Formerly listed as 3300. Credit cannot be received for both 3300 and 3369.
- 3370. THE IMAGE OF THE AMERICAN WEST** (3-0) 3 hours credit — The way the American West has been portrayed and the part the Western myth has played in a search for a national identity. First impressions of the new world; the West in colonial literature; fiction in the 19th and 20th Centuries; art, music and film; Western themes in politics; recent variations of the Western myth; the way such developments have reflected changes in popular values and a sense of national purpose.
- 3371. HISTORY OF SPORTS IN THE UNITED STATES** (3-0) 3 hours credit — The role of sports in the American past and the present. The development of both participatory and spectator sports; the role of the sports hero in American history; the question of "amateurism"; the reasons for the rise and decline in popularity of various sports; the social role of various sports; and the development of inter-collegiate athletics.
- 3372. U.S. BUSINESS AND ECONOMIC HISTORY, 1607-1865** (3-0) 3 hours credit — The roots of American economic growth with an emphasis on the transition from a colonial economy dominated by merchant families to an agricultural republic. The market and transportation revolutions as well as the developing sectional conflict between the emerging Northern industrial economy and the Southern agricultural slave economy.
- 3373. U.S. BUSINESS AND ECONOMIC HISTORY, 1865-PRESENT** (3-0) 3 hours credit — The rise of America as a world industrial power. The growth of corporate capitalism, organized labor, government regulation, the welfare state, and a consumer society.
- 3374. THE ANCIENT WORLD I** (3-0) 3 hours credit — Man from paleolithic times through the arrival of civilization in Mesopotamia, Egypt, the Eastern Mediterranean, the Indus Valley and China to the establishment of Classical Civilization, the golden age of Athens, and the absorption of the Hellenistic Kingdoms by Rome. Formerly listed as 4301. Credit cannot be received for both 4301 and 3374.
- 3375. THE ANCIENT WORLD II** (3-0) 3 hours credit — Republican and Imperial Rome: the background of Rome from neolithic times through the establishment of the Kingdom; the Republic, the world empire and the arrival of the Pax Romana; the division of the imperial institution into the Byzantine state, Western Europe and the Caliphate. Formerly listed as 4302. Credit cannot be received for both 4302 and 3375.
- 3376. MEDIEVAL EUROPE AND THE BYZANTINE EMPIRE** (3-0) 3 hours credit — The early medieval western world, the rise of the Byzantine Empire, the spread of Islam and eventual political ascendancy of Christendom from 400 to 1000. Formerly listed as 4303. Credit cannot be received for both 4303 and 3376.
- 3377. THE HIGH MIDDLE AGES** (3-0) 3 hours credit — The decline of the Byzantine Empire, the emergence of western cities, the struggle with Mohammedanism, the Crusades and the preludes to the Renaissance and Modern Europe (1001 to 1450). Formerly listed as 4304. Credit cannot be received for both 4304 and 3377.
- 3378. EUROPE: THE RENAISSANCE, 1250-1560** (3-0) 3 hours credit — The political, social, and intellectual events of the Renaissance period. The rise of the modern state, the emergence of individualism, and the incipient secularization of politics, arts, and letters. Formerly listed as 3304. Credit cannot be received for both 3304 and 3378.
- 3379. EUROPE: THE REFORMATION AND COUNTER-REFORMATION, 1450-1580** (3-0) 3 hours credit — The religious reawakening and reform that swept Europe in the 16th Century with its consequent religious wars. The political effects of religious reform in the remaking of European attitudes in regard to politics, society, and religion. Formerly listed as 3305. Credit cannot be received for both 3305 and 3379.
- 3381. THE FAMILY AND SOCIAL CHANGE IN EUROPE, 1500-1914** (3-0) 3 hours credit — Changes in individual life patterns and in the family from the Renaissance to World War I. Specific attention will be given to the effects of social change on the composition of the family and on demographic patterns.
- 3382. REVOLUTIONS AND REVOLUTIONARIES IN HISTORY** (3-0) 3 hours credit — A historical examination of the world's major revolutions, from the 16th through the 20th Centuries.

## HISTORY

- 3383. EARLY EUROPEAN DIPLOMATIC HISTORY** (3-0) 3 hours credit — International relations from the Renaissance to the Thirty Years War and its consequences. Formerly listed as 3306. Credit cannot be received for both 3306 and 3383.
- 3384. MODERN EUROPEAN DIPLOMATIC HISTORY** (3-0) 3 hours credit — The major diplomatic trends and events of the 18th through the 20th Centuries. Formerly listed as 3316. Credit cannot be received for both 3316 and 3384.
- 3385. EUROPEAN SOCIAL AND INTELLECTUAL HISTORY TO 1815** (3-0) 3 hours credit — The social and intellectual traditions of European civilization from classical models through the Enlightenment of the 18th Century. Formerly listed as 3340. Credit cannot be received for both 3340 and 3385.
- 3386. EUROPEAN SOCIAL AND INTELLECTUAL HISTORY, 1815-PRESENT** (3-0) 3 hours credit — The intellectual and social response to the development and realization of industrial society. Formerly listed as 3341. Credit cannot be received for both 3341 and 3386.
- 3388. EUROPEAN ECONOMIC HISTORY, 1750-PRESENT** (3-0) 3 hours credit — The English Industrial Revolution, Europe's hesitant emulation before 1850, and the emergence of modern large-scale corporate finance and industry in the later 19th and 20th Centuries. Topics for the 20th Century include depression and European economic integration. Formerly listed as 4328. Credit cannot be received for both 4328 and 3388.
- 3389. THE WORLD AT WAR, 1939-1945** (3-0) 3 hours credit — Various aspects of the Second World War from American, European, and Asian perspectives. Reasons for the world conflict, public opinion during the war, the resistance and liberation movements, the impact of the war upon civilian life, and the social, economic, and political effects of the most destructive event in modern history.
- 3390. HONORS COLLOQUIUM** (3-0) 3 hours credit — A multi-disciplinary course designed to meet the needs of advanced undergraduates in the Honors Program. Prerequisite: participation in the Honors Program and/or permission of instructor

**There is no distinction between 3000 and 4000 level courses in history. The prerequisite for all of the following courses is six hours in social science.**

- 4301. HISTORICAL GEOGRAPHY AND CARTOGRAPHY** (3-0) 3 hours credit — An introduction to cultural and historical geography with an emphasis on cartography and the use of maps in research and teaching.
- 4346. TUDOR ENGLAND, 1485-1603** (3-0) 3 hours credit — The legacy of the War of the Roses, the rise of absolutism, national unification under Henry VII, the religious turmoil including the Scottish Reformation and the resistance of English Protestantism to the Catholic Counter-Reformation, and the emergence of England as a world power in the reign of Elizabeth. Formerly listed as 4313. Credit cannot be received for both 4313 and 4346.
- 4347. STUART ENGLAND, 1603-1714** (3-0) 3 hours credit — Religious, economic, and political implications of the controversy between crown and parliament; Cromwell and the Puritan Commonwealth; the Glorious Revolution; and the emergence of parliamentary supremacy. The role of England in the European balance of power and the development of an overseas empire. Formerly listed as 4314. Credit cannot be received for both 4314 and 4347.
- 4348. THE MAKING OF MODERN BRITAIN, 1714-1848** (3-0) 3 hours credit — Political, social, and economic developments from the consolidation of aristocratic power to the challenge of democracy. Special topics: the nature of parliamentary government; the rise of Empire; the Industrial Revolution; Methodism and religious change; the American and Irish questions; the French wars and Napoleon; the growth of working class radicalism; and the alternative of political reform or revolution.
- 4349. MODERN BRITAIN, 1848-PRESENT** (3-0) 3 hours credit — Recent British history from Victorian grandeur to 20th Century decline. Special topics: the emergence of social stability and transition from aristocratic to democratic government; the rise to and fall from world supremacy in industry and empire; educational and intellectual change; the labor and women's movements; the problem of Ireland; World Wars I and II; and contemporary socialist Britain.
- 4350. BRITISH CONSTITUTIONAL HISTORY** (3-0) 3 hours credit — The development of the British constitution from its earliest beginnings to the present day, with special emphasis on the Anglo-Saxon institutions, the Norman constitutional development, the evolution of the major offices of the government, the development of Parliament, constitutional developments of the Stuarts, the Hanoverian constitution, the growth of democracy in the 19th and 20th Centuries, and the imperial and commonwealth institutions. Formerly listed as 4312. Credit cannot be received for both 4312 and 4350.
- 4351. BRITISH EMPIRE AND COMMONWEALTH** (3-0) 3 hours credit — British conquest, rule, and release of her empire. The development of the Commonwealth countries. Formerly listed as 4315. Credit cannot be received for both 4315 and 4351.
- 4352. MODERN IRELAND** (3-0) 3 hours credit — The contemporary crisis in Ireland in the light of Irish history. Begins with a look at conditions and attitudes in Ulster today, then examines the history of Ireland: the English policies of subjugation in the 16th and 17th Centuries, the awakening of 18th-Century Ireland, the 19th-Century "Irish Question," the establishment of the Republic in the south, Ireland's position in World Wars I and II, and the rise of the I.R.A. Concludes with a restatement and analysis of the current problems in Ireland.

- 4354. FRANCE: OLD REGIME, REVOLUTION, AND NAPOLEON, 1661-1851** (3-0) 3 hours credit — Society and politics from Louis XIV to Napoleon III. Special attention will be given to the court and policies of Louis XIV, the life of common people in pre-revolutionary France, 18th Century political and social problems, the French Revolution, Napoleon, and the revolutions of 1830 and 1848.
- 4355. MODERN FRANCE, 1851-PRESENT** (3-0) 3 hours credit — The social and economic strains involved in creating an industrial state. Special attention will be given to economic development under Napoleon III, the Revolution of 1871, industrial and social development before 1914, the devastation of World War I, the interwar depression, Nazi occupation during World War II, and post-war social change.
- 4357. IMPERIAL GERMANY, 1740-1918** (3-0) 3 hours credit — The rise of the German nation from the age of Frederick the Great to the collapse of Bismarck's Reich in World War I. Special attention will be devoted to the German character and culture, and to Bismarck, the man responsible for creating the modern German Reich.
- 4358. RISE AND FALL OF THE THIRD REICH, 1918-1945** (3-0) 3 hours credit — The violent and tragic history of Germany since the First World War; the causes and consequences of Hitler's dictatorship. The cultural brilliance and political failure of the Weimar republic; the rise of Hitler and Nazi ideology; the political, social and cultural life of the Third Reich; the ordeal of the Second World War; and the division of post-war Germany. Formerly listed as 4300. Credit cannot be received for both 4300 and 4358.
- 4359. HISTORY OF RUSSIA TO 1855** (3-0) 3 hours credit — Russian history from the origins of the first Russian state through the reign of Nicholas I. The Kievan Rus, the Mongol impact and Muscovite state, the rise of Imperial Russia, and Russia's emergence as a global power. Also listed as RUSS 4359, but credit will be granted in only one area. Formerly listed as HIST/RUSS 4331. Credit cannot be received for both 4331 and 4359.
- 4360. HISTORY OF RUSSIA SINCE 1855** (3-0) 3 hours credit — Russian history from the reign of Alexander II to the present. The decline of Imperial Russia, the rise of the revolutionary spirit, and the emergence, consolidation, and development of the Soviet state. Also listed as RUSS 4360, but credit will be granted in only one area. Formerly listed as HIST/RUSS 4332. Credit cannot be received for both 4332 and 4360.
- 4361. RUSSIA AND NORTHEASTERN EUROPE, 1225-1815** (3-0) 3 hours credit — A topical, regional approach to the growth of the Russian position in northeastern Europe from the appearance of the Mongols through the Congress of Vienna. Although Russian development will be emphasized, other Baltic powers such as Sweden, Poland, and Germany will be given due consideration. Formerly listed as 4345. Credit cannot be received for both 4345 and 4361.
- 4362. THE U.S.S.R. TODAY** (3-0) 3 hours credit — The metamorphosis of the Communist Party as well as the history and current political philosophy of the Soviet state; insight into the mind of the typical Soviet citizen. Prerequisite: consent of the instructor. May be used for POLS 4362, RUSS 4362, or HIST 4362. Credit will be granted only once. Formerly listed as RUSS/POLS/HIST 3320. Credit cannot be received for both 3320 and 4362.
- 4363. TOPICS ON THE SOVIET UNION** (3-0) 3 hours credit — Listed also as POLS 4363 and RUSS 4363, but credit will be given in only one area. The history, government, and activities of the Soviet Union compared with those of the United States as a basis for understanding the relationships between the two countries. Films, lectures, and guest speakers from on and off campus. Prerequisite: consent of the instructor. HIST, RUSS, or POLS 4362 is recommended, but not required. Formerly listed as HIST/RUSS/POLS 4337. Credit cannot be received for both 4337 and 4363.
- 4364. THE SINO-SOVIET RELATIONSHIP** (3-0) 3 hours credit — The interaction of the People's Republic of China and the Union of Soviet Socialist Republics, contrasting their recent history, philosophy, cultures, political systems, and applications of Marxist philosophy. Also listed as PHIL 4364, POLS 4364, and RUSS 4364. Credit will be granted in only one area.
- 4365. HISTORY OF SPAIN AND PORTUGAL** (3-0) 3 hours credit — The cultural, political and economic history of the Iberian peninsula from ancient times. The medieval epoch; the Catholic Church; the overseas empires of Spain and Portugal, and their artistic achievements. The monarchist ideal, as well as political ideologies such as liberalism, Marxism, anarchism, and fascism. Formerly listed as 3335. Credit cannot be received for both 3335 and 4365.
- 4366. LATIN AMERICAN HISTORY: BEGINNINGS THROUGH INDEPENDENCE** (3-0) 3 hours credit — Introduction to Latin American history and culture. Pre-Columbian and Iberian backgrounds; the conquest and the development and impact of colonial institutions. The impact of the colonial experience on contemporary Latin American institutions. Recommended for both history majors and those interested in learning more about our neighboring republics to the South.
- 4367. LATIN AMERICAN HISTORY: INDEPENDENCE TO THE PRESENT** (3-0) 3 hours credit — The historical evolution of six selected Latin American nations during the 19th and 20th centuries. The social, economic, and political development of three regions and three social groups: the Europeanized Southern Cone area of Argentina, Chile, and Uruguay; the Indian cultures of the Andean region and Bolivia and Peru; and the Caribbean setting of Cuba's Hispanic-Black population.

## HISTORY

- 4368. HISTORY OF MEXICO (3-0)** 3 hours credit — Mexican history from its pre-Colonial Indian heritage to the current scene. A social and economic analysis of the major events in Mexican history with emphasis on the Mexican Revolution for an understanding of the present situation in Mexico.
- 4370. HISTORY OF BRAZIL (3-0)** 3 hours credit — Covers Portuguese colonial rule, slavery, intellectual unrest, economic modernization, and militarism. Focuses upon Brazil's racial and cultural development in a comparative context.
- 4374. AFRICA TO 1885 (3-0)** 3 hours credit — The African continent and its peoples from prehistoric times, through the pre-European period of ancient and medieval Africa, through the European exploration and the development of the slave trade, through the abolition of the slave trade, to the 'Scramble for Africa.' Formerly listed as 3332. Credit cannot be received for both 3332 and 4374.
- 4375. AFRICA SINCE 1885 (3-0)** 3 hours credit — Africa from the 'Scramble for Africa' through the establishment of the various colonial systems, through the beginnings of African nationalism, to the contemporary period. The African Revolution and the development of the independent African states. Formerly listed as 3333. Credit cannot be received for both 3333 and 4375.
- 4378. HISTORY OF TRADITIONAL CHINA (3-0)** 3 hours credit — The development of Chinese civilization and culture. The Chinese worldview and the philosophical bases for political and social institutions. Formerly listed as 4333. Credit cannot be received for both 4333 and 4378.
- 4379. HISTORY OF MODERN CHINA (3-0)** 3 hours credit — The Ch'ing dynasty and China's response to the West. Revolution and republic, warlords, and the Japanese occupation during World War II. Civil War and the development of the People's Republic of China. Formerly listed as 4334. Credit cannot be received for both 4334 and 4379.
- 4382. HISTORY OF MODERN JAPAN (3-0)** 3 hours credit — Japanese history from the Meiji Restoration of 1867 to the present. Important forces such as militarism, capitalism, and liberalism and their impact on modern Japan. Japanese history since the end of World War II. Formerly listed as 4336. Credit cannot be received for both 4336 and 4382.
- 4384. FACISM, 1919-1945 (3-0)** 3 hours credit — The fascist regimes of Germany and Italy, the semi-fascist regimes in Spain and Portugal, and the unsuccessful fascist movements in France, Eastern Europe, and elsewhere. The causes, the nature, the leadership, and the effects of fascism, as well as anti-fascist resistance.
- 4385. HISTORY OF POLICE IN EUROPE AND AMERICA, 1750-PRESENT (3-0)** 3 hours credit — The concepts and institutions of police in various Western societies. The growth of police in England and Ireland, France and Russia, as well as in America, with special emphasis on the various attitudes toward police, the different institutional structures, and the uses of police in each society. Can be taken for credit as HIST 4385 or CRJU 4385; credit will be granted only once. Formerly listed as HIST/CRJU 4342. Credit cannot be received for both 4342 and 4385.
- 4387. EVOLUTION OF COMMUNIST SYSTEMS (3-0)** 3 hours credit — The historical and philosophical development of communism from the era of Marx and Engels to the present. Philosophies of the principal molders of Soviet communism; the resulting national forms, such as Maoism, Titoism, and Castroism; and a comparative analysis of the divergent communist systems. Also listed as RUSS 4387, PHIL 4387, and POLS 4387, but credit will be given in only one area. Prerequisite: permission of instructor. Formerly listed as HIST/RUSS/POLS 4343. Credit cannot be received for both 4343 and 4387.
- 4388. SELECTED TOPICS IN HISTORY (3-0)** 3 hours credit — Subjects of immediate interest in the various fields of history. May be repeated for credit when the topic changes. Formerly listed as 4339. Credit cannot be received for both 4339 and 4388 without the consent of the instructor.
- 4389. THE TEACHING OF HISTORY (3-0)** 3 hours credit — Problems, methods, and techniques of teaching history. Designed for students receiving teaching certification at the secondary level; History majors seeking certification must substitute this course for HIST 3300.
- 4391, 4291, 4191. UNDERGRADUATE CONFERENCE COURSE** (Variable credit as arranged). Topics assigned on an individual basis covering personal research or study in designated areas. Prerequisite: permission of the instructor.
- 4394. HONORS THESIS/SENIOR PROJECT (3-0)** 3 hours credit — Applies only to participants in the Liberal Arts Honors Program and fulfills the requirement that during the participant's senior year, the student must complete a thesis or a project of equivalent difficulty under the direction of a faculty member in the major department.

# The Department of MILITARY SCIENCE

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*Chairman: Professor Candler*

*Assistant Professors Brackenridge, Jacobs, Munden*

## PURPOSE

The Army Reserve Officers' Training Corps develops college-educated officers for the active Army and the reserve components. It provides young men and young women the opportunity to earn commissions as Army officers at the same time they work toward an academic degree. It also affords the student the opportunity to pursue either a civilian or a military career after college completion.

## PROGRAMS AVAILABLE

**General:** There are three programs available, all culminating in a United States Army commission. They are the four-year program, the two-year program, and the summer program.

**Four-Year Program:** This program is divided into two phases, a two-year basic course and a two-year advanced course. The basic course normally is taken by students in the freshman and sophomore years. It provides instruction in the basic subject areas needed to establish a firm foundation in military training. This foundation provides for continued professional development in the area of leadership and management. A three-hour course in U.S. military history, taught by the University's History Department, may be substituted in the second semester of the sophomore year.

The advanced course normally is taken during the junior and senior years of college. The course develops the student's ability to express himself clearly and accurately. It describes the role of the leader in directing and coordinating individuals and small units in the execution of tactical missions. Leadership laboratory is used for application of leadership principles through practical exercises. The student time requirement in the classroom is two hours per week one semester and three hours per week the next. There is a three-hour laboratory each week. While in the advanced course, the student is paid \$100 per month. Student veterans who have had one or more years of active military service and students who attended military schools or took high school ROTC may start ROTC with the advanced course or a level deemed appropriate by the PMS. Entrance to the advanced course is competitive, based upon the requirements of current Department of the Army regulations.

**Two-Year Program:** This program is offered for students who have had two years of college and no prior ROTC or military training. Students attend a basic six-week summer training period at a military installation after the sophomore year. This camp replaces the basic course required of students in the four-year program. After the successful completion of this basic camp, students will start the advanced course with all the pay and entitlements of the four-year program cadets.

**Summer Program:** This program is an on-campus program offered to students who have had two years of college and no prior ROTC or military training. Students attend classes on-campus during the summer. Successful completion of the summer courses qualifies the student to start the advanced course with all the pay and entitlements of the four-year program cadets.

## MINOR IN MILITARY SCIENCE

Military science may be utilized as a minor course of study in many degree programs at The University of Texas at Arlington. To be eligible, the student must be enrolled in the ROTC program, must receive acceptance of military science as a minor from his/her major degree department, and must complete 18 hours of military science, 10 of which are advanced.

## SCHOLARSHIPS

The U.S. Army Scholarship Program provides an excellent way for young men and young women to obtain assistance in financing a college education. Every scholarship provides for payment of all expenses incurred for fees, tuition, and books and \$100 a month for up to 10 months per year. There are scholarships offered in all four years with payments ranging from one to four years. Initial application may be made during the student's senior year in high school. Each year more scholarships are added to the program. All students are encouraged to make application through the Military Science Department.

## MILITARY SCIENCE

### COURSE SUBSTITUTION

ROTC credits may be used in the completion of a college degree by applying them to elective hours, credit for a three-hour history course, or credit for three hours of political science. Military science may be taken along with or in lieu of physical education or marching band.

### MILITARY SCIENCE (MILS)

**0180. LEADERSHIP LABORATORY (0-2)** 1 hour credit — Designed to develop leadership capabilities in the student. May be repeated for credit. Military science students enrolled in academic substitutions must be concurrently enrolled in MILS 0180.

**1141. MARKSMANSHIP (0-2)** 1 hour credit — Rifle and pistol marksmanship with practical application of marksmanship and safety. Includes hunter safety instruction.

**1143. BACKPACKING AND FIELD SKILLS (1-1)** 1 hour credit — Backpacking skills and field skills such as map reading, orienteering, survival techniques, first aid for common backpacking emergencies, and basic rappelling. Students will have the optional opportunity to participate in a backpacking trip.

**1144. INTRODUCTION TO MILITARY SCIENCE (1-0)** 1 hour credit — A familiarization with the military science program at UTA. Introduces the student to the Army's accession program for officers. Explains the role of the Army officer in society. Does not count for PE credit.

**2232. LEADERSHIP AND MANAGEMENT (2-0)** 2 hours credit — The art of leadership and the functions and techniques of management, decision-making, and problem-solving. Specially developed programmed exercises supplement the theoretical and practical instruction. All military science students must enroll or participate in MILS 0180 concurrently with this course unless exception is given by the Professor of Military Science.

**2248. EVOLUTION OF CONTEMPORARY MILITARY STRATEGY (2-0)** 2 hours credit — A review of contemporary military conflicts. Selected battles from World War II, Korea, Vietnam, and the Yom Kippur War are examined for impact upon current U.S. military doctrine, strategy, and weapons systems. A scenario of imagined future conflict between NATO and the Warsaw Pact is also studied. All military science students must enroll or participate in MILS 0180 concurrently with this course unless exception is given by the PMS.

**2249. MILITARY WRITING (2-0)** 2 hours credit — Preparation of writings in the Army to include correspondence, staff studies, decision papers, training programs, and combat orders and estimates. Does not count for PE credit. Prerequisite: ENGL 1302.

**2291. CONFERENCE COURSE (2-0)** 2 hours credit — Independent study. Designed to supplement the military science curricula by a student's concentrated study in a narrower field of military skill or subject matter. May be repeated for credit. Does not count for PE credit. Prerequisite: permission of the PMS.

**3241. LEADERSHIP AND TEACHING PRINCIPLES (2-0)** 2 hours credit — The basic factors which affect human behavior with emphasis on personal adjustment, individual and group motivation, character guidance, and leadership principles and traits. Teaching principles include planning and presenting instruction, speech proficiency, training aids, constructing tests, and evaluation procedures. All military science students must enroll or participate in MILS 0180 concurrently with this course unless exception is given by the PMS. Prerequisite: completion of the ROTC Basic Program or permission of the PMS.

**3342. SMALL UNIT OPERATIONS AND TACTICS (3-0)** 3 hours credit — Leadership positions and responsibilities of small unit operations and small unit tactics. Tactical instruction at the squad, platoon, and company level. All military science students must enroll or participate in MILS 0180 concurrently unless exception is given by the PMS. Prerequisite: completion of the ROTC Basic Program or permission of the PMS.

**3443. SUMMER FIELD TRAINING** 4 hours credit — Six-week off-campus field training course stressing the practical application of leadership management, with emphasis on tactical and technical military field skills.

**4342. MILITARY LAW AND PROFESSIONAL ETHICS (3-0)** 3 hours credit — Basic concepts of military justice and standards of ethics for the U.S. Army Officer. All military science students must enroll or participate in MILS 0180 concurrently with this course unless exception is given by the PMS. Prerequisite: completion of the ROTC Basic Program or permission of the PMS.

**4341. THE MILITARY TEAM, LOGISTICS, AND ADMINISTRATIVE MANAGEMENT (3-0)** 3 hours credit — Command and staff relations, intelligence, logistics, small unit administration, maintenance, and branches of the Army. All military science students must enroll or participate in MILS 0180 concurrently unless exception is given by the PMS. Prerequisite: completion of the ROTC Basic Program or permission of the PMS.

**4391. CONFERENCE COURSE (3-0)** 3 hours credit — Independent study on an individual basis on current topics in military science. Performance will be assessed by oral examination, written test, or research paper as arranged. May be repeated for credit. Prerequisite: permission of the PMS.



# The Department of MUSIC

The University of Texas at Arlington is a member of the National Association of Schools of Music.

The Department of Music offers the Bachelor of Music degree (1) with teacher certification (All-Level, Secondary choral, Secondary instrumental); (2) in Performance (Brass, Guitar, Organ, Percussion, Piano, Strings, Voice, Woodwinds), in Performance/Pedagogy (Guitar, Piano, Voice), or Performance/Accompanying (Piano); (3) in Theory/Composition; (4) in Jazz Studies. Music students must meet all the requirements of one of these specializations to receive the Bachelor of Music degree.

## REQUIREMENTS FOR A BACHELOR OF MUSIC DEGREE

<b>English:</b>	1301, 1302 and six hours of literature at the 2000 level or above.
<b>History:</b>	1311, 1312.
<b>Political Science:</b>	2311, 2312.
<b>Mathematics:</b>	1306, 1307.
<b>Science:</b>	PHYS 1300 and three hours of a laboratory science.
<b>Education:</b> (Teacher Certificate Only)	18 hours of 3000 and 4000 level courses as required by the Center for Professional Teacher Education.
<b>Foreign Language:</b> (Performance, Theory/Composition, and Jazz Studies Only)	1441, 1442, 2313 or equivalent, and 2314.
<b>Free electives:</b>	Six hours.
<b>Major:</b> (teacher certification option only)	1185, 1186, 1205, 1206, 2185, 2186, 2205, 2206, 2300, 3300, 3301; 14 hours of performance concentration (in one instrument or voice); 1180, 1181, 2180, 2181 [piano concentrates must substitute four hours of 0170 (accompanying)]; four hours of 0171 (vocal concentrates must take piano).
In addition:	<b>All-Level Certification (instrumental)</b> requires 1103, 1104, 2103, 2104, 3200, 3305, 3309, 3311, 4301, 4305, 0170 (three hours of marching band, four hours of wind ensemble/concert band; string concentrates take seven hours of orchestra). Three hours selected from 3302, 3303, 3304. <b>All-Level Certification (choral)</b> requires 3101, 3104, 3302, 3303 or 3304, 3306, 3309, 3310, 4101, 4306, 4309, 0170 (six hours of choir, one hour of opera workshop). <b>Secondary Choral Certification</b> requires 3101, 3104, 3302, 3303 or 3304, 3306, 3310, 4101, 4306, 4309, 0170 (seven hours of choir), 0170 (two hours of opera workshop), one course selected from 1103, 1104, 2103, 2104. <b>Secondary Instrumental Certification</b> requires 1103, 1104, 2103, 2104, 3104, 3200, 3201, 3305, 3311, 4301, 4305, three hours selected from 3302, 3303, 3304; 0170 (three hours of marching band, four hours of wind ensemble/concert band; string concentrates take seven hours of orchestra).

## MUSIC

### Major

1185, 1186, 1205, 1206, 2185, 2186, 2205, 2206, 2300, 3300, 3301, 3303, 3304, 3305, 3306, 4301; 14 hours of performance, concentration (in one instrument or voice); 1180, 1181, 2180, 2181 [piano concentrates must substitute four hours of 0170 (accompanying)]. Performance majors wishing to pursue upper level performance courses must obtain approval of the applied faculty of the respective division during the jury exam at the end of the sophomore level. Theory/composition majors will be admitted to upper level courses if their lower level theory and ear training courses average B or better.

(Performance option or Theory/Composition option)  
In Addition:

**Voice Performance Major** requires 3101, 4101, eight additional hours of performance major, eight hours of 0170 (a cappella choir) three hours of 0170 (opera workshop); three hours of 0171 (piano) plus a junior and a senior recital.

**Keyboard Performance Major** requires 4291 (Piano Literature I), 3205, eight additional hours of performance major, four hours of 0170 (accompanying); eight hours of 0170 (any ensemble) plus a junior and a senior recital.

**Wind, String, Percussion or Guitar Major** requires eight additional hours of performance major, four hours of 0171 (secondary applied), eight hours of 0170 (orchestra for string majors; any ensemble for wind or percussion majors); four hours 0170 (concert band for wind or percussion majors; any ensemble for string or guitar majors) plus a junior and a senior recital.

**Theory/Composition Major** requires 3391, 3392, 4491, 4492, three hours 0171 (piano), seven hours 0170 (any ensemble) plus prepare and present a program of original works.

**Major:**  
(Jazz Studies option)

1185, 1186, 1205, 1206, 2185, 2186, 2205, 2206, 3300, 3301, 3305, or 3306; 14 hours of performance concentration; 1180, 1181, 2180, 2181, [piano concentrates must substitute four hours of 0170 (small jazz groups)], seven hours of 0170 (jazz band or vocal jazz ensemble); six hours selected from 2300, 3302, 4301, 4305, or 4306, 4392; 2200, 3204, 3391, 4191 (jazz theory), 4301, 4391 (jazz perspectives), six hours of 4391 (jazz seminar), and six hours outside the Music Department.

**Total:**

134 hours including a minimum of 36 advanced hours, at least 24 of which must be in music; plus physical education or marching band or military science as required.

### Requirements for a Minor in Music

Eighteen hours of music, six hours of which must be advanced hours.

### Teacher Certification

Students have the option of All-Level or Secondary teacher certification. Prior to enrolling in EDUC 4650 or 4651 (student teaching), credit for MUSI 4305 or 4306, 3310 or 3311, 3309 and approval by applied jury and approval by the chairman of the Music Department must be received.

## BACHELOR OF MUSIC COURSE SEQUENCE

## Suggested Course Sequence:

## FRESHMAN YEAR

**First Semester:** MUSI 1205; MUSI 1185; MUSI 1180; \*Electives, 5 hours; ENGL 1301; MATH 1306; POLS 2311; Physical Education or Marching Band or Military Science — Total Credit 19 hours.

**Second Semester:** MUSI 1206; MUSI 1186; MUSI 1181; \*Electives, 5 hours; ENGL 1302; MATH 1307; POLS 2312; Physical Education or Military Science — Total Credit 19 hours.

## SOPHOMORE YEAR

**First Semester:** MUSI 2205; MUSI 2185; MUSI 2180; \*Electives, 8 hours; PHYS 1300; English (2000 literature course), 3 hours; Physical Education or Marching Band or Military Science — Total Credit 19 hours.

**Second Semester:** MUSI 2206; MUSI 2186; MUSI 2181; \*Electives, 8 hours; Science, 3 hours; English (2000 literature course), 3 hours; Physical Education or Military Science — Total Credit 19 hours.

## JUNIOR YEAR

**First Semester:** MUSI 3305 or 3306; Education or Foreign Language, 4-6 hours; \*Electives, 8-10 hours — Total Credit 17 hours.

**Second Semester:** Education or Foreign Language, 4-6 hours; \*Electives, 11-13 hours — Total Credit 17 hours.

## SENIOR YEAR

**First Semester:** HIST 1311; Education or Foreign Language, 3-6 hours; \*Electives, 9-12 hours — Total Credit 18 hours.

**Second Semester:** HIST 1312; Education or Foreign Language, 3-6; \*Electives, 1-4 hours — Total Credit 10 hours.

\*Electives should be selected to meet the requirements of the chosen area of specialization.

## MUSIC (MUSI)

*Chairman: Associate Professor Powell*

*Professor Richards, Taliaferro*

*Associate Professors Ebensberger, Lee, Lichtenwalter, Postlewait, Snodgrass, Stokan*

*Assistant Professors Baker, Baldrige, Bennett, Connor, Hornstein, Jessup, Lengyel, Moorer, Russell, Smith, Varner, Wiley*

*Specialist Braden*

**Those music courses and music organizations available to non-music majors are indicated in the course description.**

**0170. ENSEMBLES** 1 hour credit — All vocal and instrumental ensembles (e.g., bands, choirs, opera, etc.). The music major must receive credit for the ensembles required in his/her option. The schedule of classes indicates by section numbers which ensembles are offered each semester. Prerequisite: approval of the ensemble director. **\$2 lab fee.**

**1103. BRASS CLASS (0-2)** 1 hour credit — Open to music majors only. The brass instruments of the band and orchestra with emphasis on embouchure development, articulation techniques, performance of scales, and limited repertoire.

**1104. WOODWIND CLASS (0-2)** 1 hour credit — Open to music majors only. The woodwind instruments of the band and orchestra with emphasis on embouchure development, articulation techniques, performance of scales, and limited repertoire.

**1180. FUNCTIONAL PIANO I (0-2)** 1 hour credit — Required of and limited to music majors who are not piano majors or concentrators. The aim is to develop keyboard skills necessary to use the piano as a tool in teaching and performance. **\$2 lab fee.**

**1181. FUNCTIONAL PIANO II (0-2)** 1 hour credit — A continuation of MUSI 1180. Prerequisite: MUSI 1180. **\$2 lab fee.**

**1185. INTRODUCTION TO SOLFEGE AND DICTATION (0-2)** 1 hour credit — Techniques of melodic and rhythmic solmization and procedures of dictation. Required of all music majors. **\$2 lab fee.**

**1186. BASIC SOLFEGE AND DICTATION (0-2)** 1 hour credit — A continuation of MUSI 1185 and requires sightsinging and dictation of simple melodies and rhythms. Required of all music majors. Prerequisite: MUSI 1185. **\$2 lab fee.**

**1205. FUNDAMENTAL MUSIC THEORY (2-1)** 2 hours credit — Basic musical concepts such as scales, intervals, triads, etc. Required of all music majors.

**1206. DIATONIC HARMONY (2-1)** 2 hours credit — A continuation of MUSI 1205 and a study of the techniques of diatonic part writing. Required of all music majors. Prerequisite: MUSI 1205.

## MUSIC

- 1280. BASIC VOICE I** (2-0) 2 hours credit — Limited to non-music majors with nominal vocal background. Designed to develop basic vocal skills.
- 1281. BASIC VOICE II** (2-0) 2 hours credit — A continuation of MUSI 1280. Prerequisite: MUSI 1280.
- 1282. BASIC PIANO I** (2-0) 2 hours credit — Limited to non-music majors with nominal piano background. Designed to develop basic keyboard skills.
- 1283. BASIC PIANO II** (2-0) 2 hours credit — A continuation of MUSI 1282. Prerequisite: MUSI 1282.
- 1284. BASIC GUITAR I** (2-0) 2 hours credit — Limited to non-music majors. Designed to develop understanding and use of the classical guitar performance techniques.
- 1285. BASIC GUITAR II** (2-0) 2 hours credit — A continuation of MUSI 1284. Prerequisite: MUSI 1284 or faculty approval.
- 1300. MUSIC APPRECIATION** (3-0) 3 hours credit — Open to all students as humanities elective, designed to develop intelligent listening and enjoyment of music. Provides an opportunity to increase the student's cultural experience and vocabulary.
- 1301. ELEMENTS OF MUSIC** (3-0) 3 hours credit — Basic musical notation, harmony, and theory for non-music majors as a humanities elective.
- 1302. HISTORY OF JAZZ** (3-0) 3 hours credit — The development of American jazz from its African and European roots to the present. Open to all students of the University.
- 1303. POP MUSIC OF THE TWENTIETH CENTURY** (3-0) 3 hours credit — The development of rock and roll, country-western, theatre music and mixed media in the 20th Century. Open to all students of the University.
- 1305. FOUNDATIONS IN MUSIC** (3-0) 3 hours credit — For non-music majors seeking teacher certification. Emphasis on music fundamentals, listening, vocabulary, and note reading. Designed to develop musical skills necessary for vocal and instrumental participation and rhythmic responses.
- 2103. STRING CLASS** (0-2) 1 hour credit — Open to music majors only. A practical study of the string instruments of the orchestra with emphasis on bowing techniques, articulation, performance of scales, and limited repertoire.
- 2104. PERCUSSION CLASS** (0-2) 1 hour credit — Open to music majors only. A practical study of the percussion instruments of the band and orchestra with emphasis on rudimental techniques and performance of limited repertoire.
- 2180. FUNCTIONAL PIANO III** (0-2) 1 hour credit — A continuation of MUSI 1181. Prerequisite: MUSI 1181. **\$2 lab fee.**
- 2181. FUNCTIONAL PIANO IV** (0-2) 1 hour credit — A continuation of MUSI 2180. Prerequisite: MUSI 2180. **\$2 lab fee.**
- 2185. INTERMEDIATE SOLFEGE AND DICTATION** (0-2) 1 hour credit — A continuation of MUSI 1186 and requires sightsinging and dictation of simple and moderately complex melodies and rhythms in more than one part. Required of all music majors. Prerequisite: MUSI 1186. **\$2 lab fee.**
- 2186. ADVANCED SOLFEGE AND DICTATION** (0-2) 1 hour credit — A continuation of MUSI 2185 and requires sightsinging of complex melodies and dictation in four parts. Required of all music majors. Prerequisite: MUSI 2185. **\$2 lab fee.**
- 2200. JAZZ IMPROVISATION** (2-0) 2 hours credit — The melodic and harmonic foundations of contemporary jazz solo performance. Prerequisites: MUSI 1205 and 1185 and/or faculty approval.
- 2205. CHROMATIC HARMONY** (2-1) 2 hours credit — A continuation of MUSI 1206. Modulation and chromatic part writing. Required of all music majors. Prerequisite: MUSI 1206.
- 2206. APPLIED HARMONY** (2-1) 2 hours credit — A continuation of MUSI 2205. Practical application of harmony in the composition of homophonic forms. Required of all music majors. Prerequisite: MUSI 2205.
- 2300. MUSIC LITERATURE: STYLE** (3-0) 3 hours credit — An introduction to representative composers and music literature of the western world.
- 3101. ENGLISH AND FRENCH DICTION** (0-2) 1 hour credit — A guide to correct pronunciation of English and French in vocal music. Required of voice majors.
- 3103. VOICE CLASS** (0-2) 1 hour credit — Open to music majors only. Elementary vocal principles and methods of developing singing facility. Students with a choral specialization will substitute performance (piano) for this course.
- 3104. GUITAR CLASS** (0-2) 1 hour credit — Open to music majors only. A practical study of the guitar as a teaching tool in public school music education.
- 3200. MARCHING BAND METHODS** (2-0) hours credit — Open to music majors only. A detailed study of the theory of half-time show presentation including budgeting and transportation.
- 3201. ADVANCED INSTRUMENTAL TECHNIQUES** (2-0) 2 hours credit — Applies skills acquired in lower level instrumental techniques courses to the evaluation and performance of pedagogical methods, texts, and materials currently used in public school music education. Prerequisite: MUSI 1103, 1104, 2013, 2104.
- 3204. APPLIED PEDAGOGY** (2-0) 2 hours credit — A study teaching techniques as they apply to studio or class instruction in applied music. Specific areas of study will change from semester to semester. May be repeated for credit. Prerequisite: faculty approval.

- 3205. PIANO PEDAGOGY (2-1)** 2 hours credit — Open to music majors only. Teaching methods of beginning level private and class instruction. Prerequisite: faculty approval.
- 3300. MUSIC HISTORY I (3-0)** 3 hours credit — The music of western civilization from ancient times to 1750. Prerequisite: MUSI 2300.
- 3301. MUSIC HISTORY II (3-0)** 3 hours credit — The music of western civilization from 1750 to the present. Prerequisite: MUSI 2300.
- 3302. MUSIC LITERATURE: STRUCTURE (3-0)** 3 hours credit — Structure and analysis of the major forms of music literature. Prerequisites: MUSI 2205 and 2206.
- 3303. COUNTERPOINT (3-0)** 3 hours credit — Modal counterpoint as practiced by 16th Century composers. Prerequisite: MUSI 2206 or approval of the instructor.
- 3304. HARMONIC COUNTERPOINT (3-0)** 3 hours credit — Canon, invention, and fugue. Prerequisite: MUSI 3303 or faculty approval.
- 3305. INSTRUMENTAL CONDUCTING AND MATERIALS I (3-0)** 3 hours credit — Open to music majors only. A practical study of conducting techniques, rehearsal procedures and materials related to classroom teaching in the elementary and junior high school grades.
- 3306. CHORAL CONDUCTING AND MATERIALS I (3-0)** 3 hours credit — Open to music majors only. A practical study of conducting techniques, rehearsal procedures and materials related to classroom teaching in the elementary and junior high school grades.
- 3309. ELEMENTARY SCHOOL TEACHING METHODS (3-0)** 3 hours credit — Teaching techniques and materials related to teaching in the elementary grades.
- 3310. CHORAL ORGANIZATIONAL TECHNIQUES (3-0)** 3 hours credit — Open to music majors only. A practical study of the objectives and the correlated activities of the choir and choral organizations. Prerequisite: four semesters of choral ensemble.
- 3311. INSTRUMENTAL ORGANIZATIONAL TECHNIQUES (3-0)** 3 hours credit — Open to music majors only. A practical study of the objectives and the correlated activities of the secondary school band and orchestra. Prerequisite: four semesters of Band or Orchestra.
- 3390. HONORS COLLOQUIUM (3-0)** 3 hours credit — An interdisciplinary course designed to meet the needs of advanced undergraduates in the Honors Program. Prerequisite: participation in the Honors Program and/or permission of instructor.
- 3391. COMPOSITION I** 3 hours credit — individual instruction designed to meet flexibly the needs of students desiring to become composers or teachers of composition. Prerequisite: grades of B or better in MUSI 2206 and 2186. **\$2 lab fee.**
- 3392. COMPOSITION II** 3 hours credit — A continuation of MUSI 3391. Prerequisite: MUSI 3391. **\$2 lab fee.**
- 4101. GERMAN AND ITALIAN DICTION (0-2)** 1 hour credit — A guide to correct pronunciation of German and Italian in vocal music. Required of voice majors.
- 4205. ADVANCED FUNCTIONAL PIANO (2-0)** 2 hours credit — Concentrated study of keyboard skills which include sightreading, transposition, harmonization, and open score reading. Prerequisite: MUSI 2181 or equivalent proficiency.
- 4301. ARRANGING (3-0)** 3 hours credit — Required of music majors. Arranging for orchestra, band, lab band, and choir. Prerequisite: MUSI 2206.
- 4305. INSTRUMENTAL CONDUCTING AND MATERIALS II (3-0)** 3 hours credit — Open to music majors only. A practical study of conducting techniques, rehearsal procedures and materials related to classroom teaching in the secondary school. Prerequisite: MUSI 3305.
- 4306. CHORAL CONDUCTING AND MATERIALS II (3-0)** 3 hours credit — Open to music majors only. A practical study of conducting techniques, rehearsal procedures and materials related to classroom teaching in the secondary school. Prerequisite: MUSI 3306.
- 4309. MIDDLE SCHOOL MUSIC (3-0)** 3 hours credit — An in-depth study of musical and listening problems in the musical development of adolescents.
- 4191, 4291, 4391. CONFERENCE COURSE** (Variable credit from 1 to 3 semester hours as arranged) — Special problems in music. Topic may change from semester to semester. May be repeated for credit. Prerequisite: consent of the instructor or chairman of department.
- 4392. SEMINAR IN ELECTRONIC MUSIC (3-0)** 3 hours credit — A detailed study of the musical uses of electronically generated sound. Prerequisite: faculty approval.
- 4394. HONORS THESIS/SENIOR PROJECT. (3-0)** 3 hours credit — Applies only to participants in the Liberal Arts Honors Program and fulfills the requirement that during the participant's senior year, the student must complete a thesis or project of equivalent difficulty under the direction of a faculty member in the major department.
- 4491. COMPOSITION III** 4 hours credit — A continuation of MUSI 4491. Prerequisite: MUSI 4491. **\$2 lab fee.**
- 4492. COMPOSITION IV** 4 hours credit — A continuation of MUSI 4491. Prerequisite: MUSI 4491. **\$2 lab fee.**

## MUSIC

### PERFORMANCE

All music majors taking applied music (major instrument or instrument of concentration) must schedule Recital lab MUSI 0040 concurrently.

Individual instruction courses are open in limited numbers to all University students.

Students should expect, in addition to attending weekly private lessons, a minimum preparation (individual practice) of five hours per week in courses granting two hours credit, 10 hours per week in courses granting three hours credit, and 12 hours per week in courses granting four hours credit.

**0171. ELECTIVE PERFORMANCE** 1 hour credit — For students who desire elective private instruction in strings, woodwinds, brass, keyboard, voice, guitar or percussion. May be repeated eight times for credit. Prerequisite: faculty approval. **\$2 lab fee; \$20 special fee for each course.**

**1240, 1241, 2240, 2241, 3240, 3241, 4240, 4241. PRIVATE LESSONS IN VOICE** 2 hours credit — This sequence of courses is required of music majors whose concentration is voice. These courses are open to non-music majors only with written approval of the Music Department chairman. Prerequisite: The preceding course. **\$2 lab fee; \$20 special fee each course.**

**3350, 3351. PRIVATE LESSONS IN VOICE** 3 hours credit — These courses meet the requirements of performance majors in voice. Prerequisite: MUSI 2241. **\$2 lab fee. \$20 special fee each course.**

**4450, 4451. PRIVATE LESSONS IN VOICE** 4 hours credits — These courses meet the requirements of performance majors in voice. Prerequisite: MUSI 3351. **\$2 lab fee; \$20 special fee each course.**

**1242, 1243, 2242, 2243, 3242, 3243, 4242, 4243. PRIVATE LESSONS IN PIANO** 2 hours credit — This sequence of courses is required of music majors whose concentration is piano. These courses are open to non-music majors only with the written approval of the Music Department chairman. Prerequisite: The preceding course. **\$2 lab fee; \$20 special fee each course.**

**3352, 3353. PRIVATE LESSONS IN PIANO** 3 hours credit — These courses meet the requirements of performance majors in piano. Prerequisite: MUSI 3353. **\$2 lab fee; \$20 special fee each course.**

**4452, 4453. PRIVATE LESSONS IN PIANO** 4 hours credit — These courses meet the requirements of performance majors in piano. Prerequisite: MUSI 3353. **\$2 lab fee; \$20 special fee for each course.**

**1244, 1245, 2244, 2245, 3244, 3245, 4244, 4245. PRIVATE LESSONS IN STRINGS** 2 hours credit — This sequence of courses meets the requirements of music majors whose concentration is strings. These courses are open to non-music majors only with written approval of the Music Department chairman. Prerequisite: The preceding course. **\$2 lab fee; \$20 special fee each course.**

**3354, 3355. PRIVATE LESSONS IN STRINGS** 3 hours credit — These courses meet the requirements of performance majors in strings. Prerequisite: MUSI 2245. **\$2 lab fee; \$20 special fee each course.**

**4454, 4455. PRIVATE LESSONS IN STRINGS** 4 hours credit — These courses meet the requirements of performance majors in strings. Prerequisite: MUSI 3355. **\$2 lab fee; \$20 special fee each course.**

**1246, 1247, 2246, 2247, 3246, 3247, 4246, 4247. PRIVATE LESSONS IN WOODWINDS** This sequence of courses is required of music majors whose concentration is woodwinds. These courses are open to non-music majors only with written approval of the Music Department chairman. Prerequisite: The preceding course. **\$2 lab fee; \$20 special fee each course.**

**3356, 3357. PRIVATE LESSONS IN WOODWINDS** 3 hours credit — These courses meet the requirements of performance majors in woodwinds. Prerequisite: MUSI 2247. **\$2 lab fee; \$20 special fee each course.**

**4456, 4457. PRIVATE LESSONS IN WOODWINDS** 4 hours credit — These courses meet the requirements of performance majors in woodwinds. Prerequisite: MUSI 3357. **\$2 lab fee; \$20 special fee each course.**

**1248, 1249, 2248, 2249, 3248, 3249, 4248, 4249. PRIVATE LESSONS IN BRASS** 2 hours credit — This sequence of courses is required of music majors whose concentration is brass. These courses are open to non-music majors only with written approval of the Music Department chairman. Prerequisite: the preceding course. **\$2 lab fee; \$20 special fee each course.**

**3358, 3359. PRIVATE LESSONS IN BRASS** 3 hours credit — These courses meet the requirements of performance majors in brass. Prerequisite: MUSI 2249. **\$2 lab fee; \$20 special fee each course.**

**4458, 4459. PRIVATE LESSONS IN BRASS** 4 hours credit — These courses meet the requirements of performance majors in brass. Prerequisite: MUSI 3359. **\$2 lab fee; \$20 special fee each course.**

**1250, 1251, 2250, 2251, 3250, 3251, 4250, 4251. PRIVATE LESSONS IN PERCUSSION** 2 hours credit — This sequence of courses is required of music majors whose concentration is percussion. These courses are open to non-music majors only with written approval of the Music Department chairman. Prerequisite: The preceding course. **\$2 lab fee; \$20 special fee each course.**

**3360, 3361. PRIVATE LESSONS IN PERCUSSION** 3 hours credit — These courses meet the requirements of performance majors in percussion. Prerequisite: MUSI 2251. **\$2 lab fee; \$20 special fee each course.**

**4460, 4461. PRIVATE LESSONS IN PERCUSSION** 4 hours credit — These courses meet the requirements of performance majors in percussion. Prerequisite: MUSI 3361. **\$2 lab fee; \$20 special fee each course.**

**1252, 1253, 2252, 2253, 3252, 3253, 4252, 4253. PRIVATE LESSONS IN GUITAR** 2 hours credit — This sequence of courses is required of music majors whose concentration is guitar. These courses are open to non-music majors only with written approval of the Music Department chairman. Prerequisite: The preceding course. **\$2 lab fee; \$20 special fee each course.**

**3362, 3363. PRIVATE LESSONS IN GUITAR** 3 hours credit — These courses meet the requirements of performance majors in guitar. Prerequisite: MUSI 2253. **\$2 lab fee; \$20 special fee each course.**

**4462, 4463. PRIVATE LESSONS IN GUITAR** 4 hours credit — These courses meet the requirements of performance majors in guitar. Prerequisites: MUSI 3363. **\$2 lab fee; \$20 special fee each course.**

**1257, 1258, 2257, 2258, 3257, 3258, 4257, 4258. PRIVATE LESSONS IN ORGAN** 2 hours credit — This sequence of courses is required of music majors whose concentration is organ. These courses are open to non-music majors only with written approval of the Music Department chairman. Prerequisite: the preceding course. **\$2 lab fee; \$20 special fee each course.**

**3367, 3368. PRIVATE LESSONS IN ORGAN** 3 hours credit — These course meet the requirements of performance majors in organ. Prerequisite: MUSI 2258. **\$2 lab fee; \$20 special fee each course.**

**4467, 4468. PRIVATE LESSONS IN ORGAN** 4 hours credit — These courses meet the requirements of performance majors in organ. Prerequisite: MUSI 3368. **\$2 lab fee; \$20 special fee each course.**



# The Department of PHILOSOPHY

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## REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN PHILOSOPHY

<b>Economics:</b>	2305, 2306.
<b>English:</b>	1301, 1302, and six hours of literature.
<b>History:</b>	1311, 1312, 2301, 2302.
<b>Political Science:</b>	2311, 2312.
<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent, and 2314.
<b>Mathematics:</b>	Six hours.
<b>Psychology:</b>	1315.
<b>Science:</b>	12 hours of science, six of which must be in one science with laboratory.
<b>Electives:</b>	Sufficient to give the total number of hours required for a degree.
<b>Major:</b>	33 hours of philosophy including three hours at the 1000 level; 2311 and six additional hours at the 2000 level; 3301, 3302, 3303, 3304; and nine other advanced hours with at least six hours at the 4000 level.
<b>Minor:</b>	18 hours, at least six of which must be advanced.
<b>Total:</b>	128 hours, at least 36 of which must be advanced, plus physical education or military science or marching band as required.

### *Suggested Course Sequence:*

#### FRESHMAN YEAR

**First Semester:** ENGL 1301; Foreign Language 1441; Mathematics, 3 hours; Philosophy (1000 level), 3 hours; HIST 2301; Physical Education or Military Science or Marching Band — Total Credit 17 hours.

**Second Semester:** ENGL 1302; Foreign Language 1442; Mathematics, 3 hours; PHIL 2311; HIST 2302; Physical Education or Military Science — Total Credit 17 hours.

#### SOPHOMORE YEAR

**First Semester:** English (2000 literature course), 3 hours; Foreign Language, 3 hours; Science, 3 or 4 hours; HIST 1311; Philosophy (2000 level), 3 hours; Physical Education or Military Science or Marching Band — Total Credit 16 to 18 hours.

**Second Semester:** English (2000 literature course), 3 hours; Foreign Language, 3 hours; Science, 3 or 4 hours; HIST 1312; Philosophy (2000 level), 3 hours; Physical Education or Military Science — Total Credit 16 to 18 hours.

#### JUNIOR YEAR

**First Semester:** Science, 3 or 4 hours; ECON 2305; POLS 2311; PHIL 3301; PSYC 1315 — Total Credit 15 or 16 hours.

**Second Semester:** Science, 3 or 4 hours; ECON 2306; POLS 2312; PHIL 3302; Philosophy 3000 or 4000, 3 hours — Total Credit 15 or 16 hours.

#### SENIOR YEAR

**First Semester:** PHIL 3303; Philosophy (4000 level), 3 hours; Minor 3000 or 4000, 3 hours; Electives 3000 or 4000, 6 hours — Total Credit 15 hours.

**Second Semester:** PHIL 3304; Philosophy (4000 level), 3 hours; Minor 3000 or 4000, 3 hours; Elective 3000 or 4000, 3 hours; Elective (any level), 3 hours — Total Credit 15 hours.



**PHILOSOPHY (PHIL)**

*Chairman: Associate Professor King*

*Associate Professors Dalrymple, Langsdorf, Townsend*

*Assistant Professors Lee, Reeder*

*Visiting Assistant Professor McPherran*

**I. INTRODUCTIONS TO PHILOSOPHY:** Recommended for beginning students. The following courses are designed to introduce students to the study of philosophy through a range of approaches which take account of the different interests and needs of students from other disciplines and majors. Because these are different approaches, students may wish to take more than one, and may receive credit for each different course successfully completed.

**1301. CRITICAL THINKING (3-0)** 3 hours credit — Approaches philosophy through the analysis of arguments and rhetorical forms. Deals with common forms of valid and fallacious reasoning and includes exercises and drill in practical reasoning.

**1302. MAJOR PHILOSOPHICAL WRITERS (3-0)** 3 hours credit — Approaches philosophy through the examination of crucial texts in the history of philosophy.

**1303. BASIC PHILOSOPHICAL PROBLEMS (3-0)** 3 hours credit — Approaches philosophy through examination of one or more basic problems of lasting interest to philosophers. Typical problems may include the existence of God, free-will and determinism, the nature of man (the problem of self-identity, the nature of mind, etc.), and skepticism.

**1304. CONTEMPORARY MORAL PROBLEMS (3-0)** 3 hours credit — Approaches philosophy through the examination of ethical problems and theories which have a bearing on contemporary life. Texts may include both classical and contemporary ethical writings and deal with problems such as the conditions under which life may be taken (abortion, capital punishment, medical ethics), business ethics, social justice, and individual rights.

**1305. PHILOSOPHY AND CULTURE (3-0)** 3 hours credit — Approaches philosophy in a cultural context through the interrelation of basic philosophical texts and other forms of literature and art.

**1306. PHILOSOPHY AND BIOGRAPHY (3-0)** 3 hours credit — Approaches philosophy through the biographical and autobiographical writings of major philosophers. Philosophical problems will be studied in the context of the lives of the writers. Texts will include philosophical writings as well as confessional and autobiographical works and biographies.

**1307. PHILOSOPHY EAST AND WEST (3-0)** 3 hours credit — Approaches philosophy through the comparison of Eastern and Western views of fundamental philosophical issues. Texts may come from both Eastern and Western traditions.

**1308. KNOWLEDGE AND SOCIETY (3-0)** 3 hours credit — Approaches philosophy through the consideration of the origins and nature of knowledge. Emphasis placed on one or more of the following relationships: God and humans, knowledge and faith, society and the state, opinion and truth.

**II. INTERMEDIATE AND ADVANCED COURSES IN PHILOSOPHY:** These courses are designed for students with specific interests in some philosophical area or with a background in philosophy or a related discipline. Unless specified, the courses do not have explicit prerequisites. The courses are more specific, more detailed, and require more intense work in a particular area than the introductory sequence of courses. A specific interest in a problem or area in philosophy may qualify the student to enroll in these courses without having completed one or more of the introductory courses.

**2301. HUMANITIES I (3-0)** 3 hours credit — The interrelation of the humanities (primarily art, literature, music, and philosophy) and the humanistic basis of western culture from Greece to the beginning of the modern period. To provide an interdisciplinary study of the basic cultural patterns and traditions which inform our thinking and to clarify the relation of ideas to culture.

**2302. HUMANITIES II (3-0)** 3 hours credit — A continuation of the interdisciplinary approach to ideas and thinking of PHIL 2301, with primary emphasis on modern western culture. An in-depth study of the basic patterns of modern ideas and thought within a broad cultural framework.

**2311. LOGIC (3-0)** 3 hours credit — The development of formal and symbolic systems for the analysis of arguments. The scope of the course will be basically modern logic: truth-functional analysis, propositional calculus, and some predicate calculus. This course was formerly PHIL 1312; credit will not be granted for both 1312 and 2311.

**2312. ETHICS (3-0)** 3 hours credit — An inquiry into the basic principles of the moral life through a critical examination of traditional and current theories of value, right and wrong, good and evil, happiness, duty and freedom. Prerequisite: sophomore standing.

**2313. AESTHETICS (3-0)** 3 hours credit — Problems in the philosophy of art and art criticism; the history of aesthetic theory.

**3301. HISTORY OF PHILOSOPHY: ANCIENT PHILOSOPHY (3-0)** 3 hours credit — The beginning and the early developments of the western philosophical tradition. Ancient Greek philosophy, basically the Pre-Socratics, Socrates, Plato and Aristotle.

**3302. HISTORY OF PHILOSOPHY: ROMAN AND MEDIEVAL PHILOSOPHY (3-0)** 3 hours credit — Post-Aristotelians (e.g., the later Stoics, the Epicureans, Neo-Platonists); philosophy of the early Church Fathers through Aquinas and later Scholastics.

## **PHILOSOPHY**

**3303. HISTORY OF PHILOSOPHY: RENAISSANCE AND EARLY MODERN EUROPEAN PHILOSOPHY (3-0)** 3 hours credit — The philosophical views of Galileo, Newton, Bacon, and Hobbes, the Continental Rationalists and British Empiricists, and a brief introduction to the philosophy of Immanuel Kant.

**3304. HISTORY OF PHILOSOPHY: 18TH AND 19TH CENTURY EUROPEAN PHILOSOPHY (3-0)** 3 hours credit — Major European philosophers from the time of Kant up to the contemporary Scientific Age.

**3313. SURVEY OF AMERICAN PHILOSOPHY (3-0)** 3 hours credit — The philosophical traditions of America from Jonathan Edwards to John Dewey. Prerequisite: three hours of philosophy or consent of instructor.

**3314. TWENTIETH CENTURY PHILOSOPHY (3-0)** 3 hours credit — Major themes and philosophers today in their historical setting. Prerequisite: six hours of philosophy or consent of the instructor.



- 3315. ORIENTAL PHILOSOPHY AND RELIGION (3-0)** 3 hours credit — Some of the major eastern traditions including Hinduism, Taoism and Buddhism. The ancient roots and developments of these traditions and some of their modern and contemporary manifestations.
- 3316. PHILOSOPHY OF RELIGION (3-0)** 3 hours credit — Problems that engage the philosophy of religion (e.g., the existence of god, theodicy, religious language) and the way these problems have been treated by some outstanding Western thinkers.
- 3317. INTERMEDIATE LOGIC (3-0)** 3 hours credit — Begins with predicate calculus and includes such topics as theorems of logic, modal logic, identity, and others. Prerequisite: PHIL 2311 or equivalent.
- 3390. HONORS COLLOQUIUM (3-0)** 3 hours credit — An interdisciplinary course designed to meet the needs of advanced undergraduates in the Honors Program. Prerequisite: participation in the Honors Program and/or permission of instructor.
- 4311. PROBLEMS IN CONTEMPORARY SOCIAL AND POLITICAL PHILOSOPHY (3-0)** 3 hours credit — The nature of social change, cultural evolution, revolution, and the state and society. Prerequisite: six hours of philosophy or permission of instructor.
- 4312. PROBLEMS IN CONTEMPORARY PHENOMINOLOGY AND EXISTENTIALISM (3-0)** 3 hours credit — Issues raised by modern philosophers Husserl, Heidegger, Sartre, Camus, Jasper, Buber, and many others. Prerequisite: six hours of philosophy or permission of instructor.
- 4313. PROBLEMS IN CONTEMPORARY ANALYTIC PHILOSOPHY (3-0)** 3 hours credit — Attitudes and methods of both logical and linguistic analysis. The writings of such philosophers as Russell, Moore, Austin, and others. Prerequisite: six hours of philosophy or permission of instructor.
- 4314. PHILOSOPHY OF LOGIC AND LANGUAGE (3-0)** 3 hours credit — Problems of semantics of formal systems and of probability; the differences between inductive and deductive systems. Prerequisite: six hours of philosophy or permission of instructor.
- 4315. THE PHILOSOPHY OF SCIENCE AND TECHNOLOGY (3-0)** 3 hours credit — Analytical study of the method and goals of scientific scholars and inquiry. The distinction between formal and empirical sciences, laws and theories, measurement, the role of observation and experiment, and probability. Prerequisite: six hours of philosophy or consent of the instructor.
- 4316. STUDIES IN ORIENTAL TRADITIONS (3-0)** 3 hours credit — An intensive study of one or more of the major Oriental philosophic traditions, such as Hinduism, Buddhism, or Taoism, among others. Study material covers the ancient beginnings of the specific tradition, its philosophic and historical development, and its contemporary manifestations. The particular tradition is announced prior to the semester in which it is offered, and the course may be repeated for credit as the topic changes.
- 4317. PHILOSOPHY OF HISTORY AND CULTURE (3-0)** 3 hours credit — Theories of human culture and philosophies of history from Augustine to Toynbee. The nature and limits of our knowledge of the past, the categories of explanation used by historians, the aims of historical inquiry, and the relation of these problems to speculation about the "meaning" of history.
- 4318. PHILOSOPHY IN LITERATURE (3-0)** 3 hours credit — The role of ideas in literature and an analysis of the actual contacts between philosophy and the dominant world views of the great writers of literature.
- 4364. THE SINO-SOVIET RELATIONSHIP (3-0)** 3 hours credit — The interaction of the People's Republic of China and the Union of Soviet Socialist Republics; their recent history, philosophy, cultures, political systems, and applications of Marxist philosophy. Also listed as RUSS 4364, POLS 4364, and HIST 4364; credit will be granted in only one area.
- 4387. EVOLUTION OF COMMUNIST SYSTEMS (3-0)** 3 hours credit — The historical and philosophical development of communism from the era of Marx and Engels to the present. Philosophies of the principal molders of Soviet communism; the resulting national forms, such as Maoism, Titoism, and Castroism; and a comparative analysis of the divergent communist systems. Also listed as RUSS 4387, HIST 4387, and POLS 4387, but credit will be given in only one area. Prerequisite: departmental permission.
- 4391. UNDERGRADUATE CONFERENCE COURSE (3-0)** 3 hours credit — Topics assigned on an individual basis covering research of individual students or study in designated areas. May be repeated for credit.
- 4394. HONORS THESIS/SENIOR PROJECT (3-0)** 3 hours credit — Applies only to participants in the Liberal Arts Honors Program and fulfills the requirement that during the participant's senior year, the student must complete a thesis or a project of equivalent difficulty under the direction of a faculty member in the major department.

# The Department of PHYSICAL EDUCATION

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## REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN PHYSICAL EDUCATION (With Teacher Certification\*)

<b>English:</b>	1301, 1302, and six hours of literature.
<b>History:</b>	1311, 1312.
<b>Political Science:</b>	2311, 2312.
<b>Mathematics:</b>	Six hours.
<b>Science:</b>	BIOL 1447, 1448, and 2455.
<b>Speech:</b>	1301.
<b>Sociology or Psychology:</b>	SOCI 1311 or PSYC 1311 or 3301.

### SECONDARY

Core: 1315, 2341 or 3304, 2306, 3301, 3315, 3320, 4325, and 4330.

#### Specialization Areas — Select One

Coaching: 3302; 3303; one or more from 4201, 4202, 4203, 4204, or 4205; and 4390.

Athletic Training: 2330, HEED 2340, and 4393 (repeated for additional three hours credit).

Recreation: 3309, 3311, and 4392 (repeated for additional three hours credit).

Generalist: 12 hours selected in any combination from the three above-listed Specialization Areas or any other physical education courses approved by the Departmental Advisor.

Education — 18 hours as required by the Center for Professional Teacher Education for certification.

Electives — Sufficient to give the total number of hours required for a degree (minimum of six hours).

Second Teaching Field — 24 hours with a minimum of 12 advanced (consult Center for Professional Teacher Education).

Total: 132 hours, 36 of which must be advanced, plus four semesters of activity courses for physical education majors only.

### ALL-LEVEL

Core: 1315, 2288, 2306, 3301, 3315, 3320, 3430, 4325, and 4330.

Specialization Area: nine hours in consultation with major advisor.

Education: 24 hours as required by the Center for Professional Teacher Education for certification.

Second Teaching Field: 24 hours with a minimum of 12 advanced (consult Center for Professional Teacher Education).

Total: 132 hours, 36 of which must be advanced, plus 2289 and three semesters of activity courses for physical education majors only.

**\*A current Red Cross First Aid Certificate must be held before a student will be approved for student teaching.**

### ELEMENTARY

Core: 1315, 2288, 2289, 2306, 3301, 3315, 3430, 4325, and 4330.

Specialization Area: nine hours in consultation with major advisor.

Education: 30 hours as required by Center for Professional Teacher Education for certification.

Electives: Sufficient to give the total number of hours required for a degree (minimum of six hours).

## PHYSICAL EDUCATION

Combination of Courses: 12 hours, to include HEED 1316 and MUSI 1305 plus six additional hours from the approved list.

Total: 132 hours, 36 of which must be advanced, plus activity course 0131 or 0133 and three semesters of activity courses for physical education majors only.

### REQUIREMENTS FOR A SECOND TEACHING FIELD

- Physical Education:** 1315, 2341 or 3304, 2306, 3301, 3315, 3320, 4325, and 4330, plus four semesters of activity courses for physical education majors only.
- Health Education:** 1316, 2340, 3320, and 15 hours from 1301, 2317, 3312, 3330, 4312, 4320, 4391.

Students electing physical education as a second teaching field must also have credit for anatomy and physiology.

### Suggested Course Sequence — SECONDARY

#### FRESHMAN YEAR

**First Semester:** ENGL 1301; HIST 1311; BIOL 1447; Mathematics, 3 hours; PHED 1315; Physical Education Majors Only Activity, 2 Hours — Total Credit 18 hours.

**Second Semester:** ENGL 1302; HIST 1312; BIOL 1448; Mathematics, 3 hours; PHED 2302 or 2341; Physical Education Majors Only Activity, 2 hours — Total Credit 18 hours.

#### SOPHOMORE YEAR

**First Semester:** English (2000 literature course), 3 hours; POLS 2311; BIOL 2455; SPCH 1301; PHED 2306; Physical Education Majors Only Activity, 2 hours — Total Credit 18 hours.

**Second Semester:** English (2000 literature course), 3 hours; POLS 2312; SOCI 1311 or PSYC 1311 or 3301; PHED 3301; Elective, 3 hours; Physical Education Majors Only Activity, 2 hours — Total Credit 17 hours.

#### JUNIOR YEAR

**First Semester:** EDUC 3310; Education (approved), 3 hours; PHED 3315; PHED 3320; Second Teaching Field, 6 hours — Total Credit 18 hours.

**Second Semester:** EDUC 4311; PHED 4325; Physical Education Specialization Area, 6 hours; Second Teaching Field, 6 hours — Total Credit 18 hours.

#### SENIOR YEAR

**First Semester:** EDUC 4312; PHED 4330; Physical Education Specialization Area, 6 hours; Second Teaching Field, 6 hours — Total Credit 18 hours.

**Second Semester:** EDUC 4650; Elective, 3 hours; Second Teaching Field, 6 hours — Total Credit 15 hours.

### Suggested Course Sequence — ALL LEVEL

#### FRESHMAN YEAR

**First Semester:** ENGL 1301; HIST 1311; BIOL 1447; Mathematics, 3 hours; PHED 1315; Physical Education Majors Only Activity, 2 hours — Total Credit 18 hours.

**Second Semester:** ENGL 1302; HIST 1312; BIOL 1448; Mathematics, 3 hours; PHED 2288; Physical Education Majors Only Activity, 2 hours — Total Credit 17 hours.

#### SOPHOMORE YEAR

**First Semester:** English (2000 literature course), 3 hours; POLS 2311; BIOL 2455; SOCI 1311 or PSYC 1311 or 3301; PHED 2289; PHED 2306 — Total Credit 18 hours.

**Second Semester:** English (2000 literature course), 3 hours; POLS 2312; SPCH 1301; PHED 3301; Elective, 3 hours; Physical Education Majors Only Activity, 2 hours — Total Credit 17 hours.

#### JUNIOR YEAR

**First Semester:** EDUC 3306; EDUC 3310; Education (approved), 3 hours; Second Teaching Field, 6 hours; PHED 3315 — Total Credit 18 hours.

**Second Semester:** EDUC 3316; EDUC 4311; Second Teaching Field, 6 hours; PHED 3320; Elective, 3 hours — Total Credit 18 hours.

#### SENIOR YEAR

**First Semester:** EDUC 4312; Second Teaching Field, 9 hours; PHED 3430; PHED 4325 — Total Credit 19 hours.

**Second Semester:** EDUC 4651; Second Teaching Field, 3 hours; PHED 4330 — Total Credit 12 hours.

## PHYSICAL EDUCATION

### Suggested Course Sequence — ELEMENTARY

#### FRESHMAN YEAR

**First Semester:** ENGL 1301; HIST 1311; BIOL 1447; Mathematics, 3 hours; PHED 1315; Physical Education Majors Only Activity, 2 hours — Total Credit 18 hours.

**Second Semester:** ENGL 1302; HIST 1312; BIOL 1448; Mathematics, 3 hours; PHED 2288; Physical Education Majors Only Activity, 2 hours — Total Credit 17 hours.

#### SOPHOMORE YEAR

**First Semester:** English (2000 literature course), 3 hours; POLS 2311; BIOL 2455; SOCI 1311 or PSYC 1311 or 3301; PHED 2289; PHED 2306; PHED 0131 or 0133 — Total Credit 19 hours.

**Second Semester:** English (2000 literature course), 3 hours; POLS 2312; SPCH 1301; PHED 3301; Elective, 3 hours; Physical Education Majors Only Activity, 2 hours — Total Credit 17 hours.

#### JUNIOR YEAR

**First Semester:** PHED 3315; PHED 2430; EDUC 3306; EDUC 3316; EDUC 4301; Elective, 3 hours — Total Credit 19 hours.

**Second Semester:** PHED 4325; Physical Education Specialization Area, 3 hours; EDUC 4302; EDUC 4303; EDUC 4304; Combination of courses, 3 hours — Total Credit 18 hours.

#### SENIOR YEAR

**First Semester:** Physical Education Specialization Area, 6 hours; 4359, 4360, 4361, 4362, 4363, 4364, 4365, 4366, 4367, (approved), 3 hours — Total Credit 18 hours.

**Second Semester:** Combination of courses, 3 hours; EDUC 4652; Education (approved), 3 hours — Total Credit 12 hours.

### REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN PHYSICAL EDUCATION (Without Teacher Certification)

**English:** 1301, 1302, and six hours of literature.

**Political Science:** 2311, 2312.

**History:** 1311, 1312.

**Science:** BIOL 1447, 1448 and 2455.

**Mathematics:** Six hours.

**Foreign Language:** 1441, 1442, 2313 or equivalent, and 2314.

#### Major:

Core: 1315, 2341 or 3304, 2306, 3301, 3315, 3320, 4325, and 4330.

#### Specialization Area — Select one

**Track A** — Coaching — 3302; 3303; one or more from 4201, 4202, 4203, 4204, or 4205; and 4390.

**Track B** — Athletic Training — 2330, HEED 2340, 4393 (repeated for additional three hours credit).

**Track C** — Recreation — 3309, 3311, 4392 (repeated for additional three hours credit).

**Track D** — Generalist — 12 hours selected in any combination from the three above-listed Specialization Areas, or any other physical education courses approved by the Departmental Advisor.

#### Minors:

**Secondary:** 18 hours, at least six of which must be advanced.

**All-Level:** Management Recreation: Consult Department of Physical Education for 18 hours requirement.

**Electives:** Sufficient to give the total number of hours required for the degree.

**Total Hours:** 132 hours, 36 of which must be advanced, plus four semesters of activity courses for physical education majors only.

**PHYSICAL EDUCATION (PHED)**

*Chairman: Professor Anderson*

*Professor Lowry*

*Associate Professors D'Esposito, Garrett, Lane, Reeves, Simmons, Stafford*

*Assistant Professors Boone, Maxwell, McKeown, Pippin, Ridgeway, Ward*

*Specialist Barnick, Reimer, Tucker, Wheeler*

**Theory Sections**

**1315. FOUNDATIONS OF PHYSICAL EDUCATION** (3-0) 3 hours credit — Introduction to the profession of health and physical education. History, philosophy, aims, objectives, principles, and potential values of physical activity.

**2288. BASIC SKILLS IN MOVEMENT EDUCATION** (1-2) 2 hours credit — Elements of movement education for developing basic skills in movement such as locomotor and non-locomotor skills, throwing, catching, and striking skills, and creative rhythmic movement skills. Emphasis on utilization of the discovery approach to learning.

**2289. LOW-ORGANIZED GAMES AND MODIFIED SPORTS** (1-2) 2 hours credit — A variety of low-organized games and lead-up activities suitable for elementary school programs. Various teaching procedures, including methods teachers can use for developing creativity through game activities.

**2306. PSYCHOLOGY OF MOTOR LEARNING** (3-0) 3 hours credit — Psychological factors relevant to learning motor skills as the foundation for instructional techniques. Emphasis upon reinforcement, repetition, transfer, cues, practice schedules and conditions, motivation, and attitudes as variables affecting the learning and performance of motor skills. Prerequisite: PSYC 1311.

**2310. OFFICIATING MEN'S SPORTS** (3-0) 3 hours credit — Designed to prepare students to officiate physical education, intramural, and interscholastic sports. Prerequisites: departmental approval and sophomore standing.

**2311. OFFICIATING WOMEN'S SPORTS** (3-0) 3 hours credit — Designed to prepare students to officiate physical education, intramural, and interscholastic sports. Prerequisites: departmental approval and sophomore standing.

**2330. CARE AND PREVENTION OF ATHLETIC INJURIES** (3-0) 3 hours credit — Causative factors, the care, the treatment, and the prevention of athletic injuries.

**2341. PRINCIPLES AND METHODS OF WATER SAFETY INSTRUCTION** (2-3) 3 hours credit — To promote water safety in, on, and about water. Includes individual skill development in swimming and life saving; principles of teaching swimming, life saving, and related fields. Can lead to certification as a Red Cross Water Safety Instructor. Prerequisites: 17 years of age; current Red Cross Advanced Life Saving Certificate. **\$8.00 service fee.**

**3301. KINESIOLOGY** (3-0) 3 hours credit — Anatomical and mechanical analysis of physical activities for promoting normal physical development and improvement of performance. Prerequisite: BIOL 2455.

**3302. DYNAMICS OF COACHING** (3-0) 3 hours credit — Coaching as related to techniques and procedures for individual and team motivation, and the impact of motivation on the present and future emotional status of participants.

**3303. ADMINISTRATION OF SPORT ACTIVITIES** (3-0) 3 hours credit — The principles, processes, and applications related to budgeting, scheduling, selection and purchase of equipment, interaction with governing agencies, and community groups necessary to conduct sport programs.

**3304. ADAPTED PHYSICAL EDUCATION** (3-0) 3 hours credit — Various methods of dealing with the student who needs physical education adapted to his specific problem or handicap. Prerequisite: PHED 3301. Formerly listed as 2302. Credit cannot be received for both 2302 and 3304.

**3309. FOUNDATIONS OF RECREATION** (3-0) 3 hours credit — Leisure time in our social structure and the agencies which have developed to provide leisure time activities. Emphasis on program development and leadership skills in the recreation profession.

**3311. SPORTS PROGRAMS AND INTRAMURALS** (3-0) 3 hours credit — Designed to teach students to organize and administer recreational sports programs.

**3315. PHYSIOLOGY OF EXERCISE** (3-0) 3 hours credit — Provides the physiology background necessary for an understanding of the responses of the human body to exercise. Emphasis on physiological concepts and their relationship to health, physical education, coaching, conditioning, and athletic training programs. Prerequisite: BIOL 2455.

**3320. PHYSICAL EDUCATION: METHODS AND MATERIALS** (2-3) 3 hours credit — Physical education class program and extra-class program. Curriculum development, methods and techniques of teaching motor skills, unit and lesson development, and organization and management of classes and extra-class programs.

**3390. HONORS COLLOQUIUM** (3-0) 3 hours credit. An interdisciplinary course designed to meet the needs of advanced undergraduates in the Honors Program.

## PHYSICAL EDUCATION

**3430. PHYSICAL EDUCATION IN THE ELEMENTARY SCHOOL** (3-4) 4 hours credit — The role of physical education in the elementary school curriculum. How to plan a physical education program for the normal and atypical child. Materials and equipment needed for implementing a physical education program and curricula currently offered in various schools in the nation. Individual units will be developed in movement exploration, low-organized games, creative play and rhythmic activities.

**4201. TECHNIQUES OF COACHING BASEBALL** (1-2) 2 hours credit — The study of theories and techniques involved in coaching baseball.

**4202. TECHNIQUES OF COACHING BASKETBALL** (-2) 2 hours credit — The study of theories and techniques involved in coaching basketball.

**4203. TECHNIQUES OF COACHING FOOTBALL** (1-2) 2 hours credit — The study of theories and techniques involved in coaching football.

**4204. TECHNIQUES OF COACHING TRACK AND FIELD** (1-2) 2 hours credit — The study of theories and techniques involved in coaching track and field.

**4205. TECHNIQUES OF COACHING VOLLEYBALL** (1-2) 2 hours credit — The study of theories and techniques involved in coaching volleyball.

**4325. MEASUREMENT AND EVALUATION IN MOTOR DEVELOPMENT AND ABILITY** (3-0) 3 hours credit — Basic concepts in the learning and development of motor skill activities. Basic philosophy and current practices in the organization and administration of testing, measuring, evaluation, and grading in health and physical education. Prerequisite: senior standing.

**4330. PROJECTS IN PROFESSIONAL EXPERIENCES** (3-0) 3 hours credit — Professional opportunities, professional ethics, professional organizations, and the physical educator's role within the total public educational system. Prerequisite: junior standing.

**4390. COACHING PRACTICUM** (0-9) 3 hours credit — Designed on an individual basis to acquaint the student with experiences involving first-hand observation of, and participation in, the coaching of interscholastic and/or intercollegiate sports. Students must make application for enrollment in this course by October 1 for spring and by April 1 for fall.

**4191, 4291, 4391. UNDERGRADUATE CONFERENCE COURSE** (Variable credit as arranged) Topics assigned on an individual basis covering personal research or study in the designated area. Prerequisite: permission of department chairperson.

**4392. PRACTICUM IN PROFESSIONAL RECREATION** (0-9) 3 hours credit — Experiences in professional recreation will be provided on an individual basis under the direct supervision of a recreational professional. May be repeated for credit/ Prerequisite: junior standing

**4393. PRACTICUM IN ATHLETIC TRAINING TECHNIQUES** (0-9) 3 hours credit — Experiences in athletic training on an individual basis under direct supervision of a certified athletic trainer. May be repeated for credit. Prerequisite: PHED 2330.

**4394. HONORS THESIS/SENIOR PROJECT** (3-0) 3 hours — Applies only to participants in the Liberal Arts Honors Program and fulfills the requirement that during the participant's senior year, the student must complete a thesis or a project of equivalent difficulty under the direction of a faculty member in the major department.

**4395. INDIVIDUAL STUDY IN PHYSICAL EDUCATION** (3-0) 3 hours credit — The completion of an existing course on an individual basis as contracted with an approved faculty member. This procedure is limited to emergency situation, and must be identified through the departmental advising process.

**4196, 4296, 4396. SPECIAL TOPICS IN PHYSICAL EDUCATION** (Variable credit as arranged) — Designed to meet the current needs of students. May be repeated for credit when the topic changes. Formerly listed as 4191, 4291, 4391.

### Activity Sections

Four semesters of physical education are required for graduation and it is recommended that these courses be taken in the first four semesters of attendance. Students are advised that this is a semester requirement and not a semester hour requirement. Activity courses on the 1200 level taken for a semester will satisfy only one semester of the requirement even though two semester hours credit is given.

**Uniforms:** With the exception of special footwear, as needed, uniforms are furnished by the Physical Education Department in those activity classes where the student is required to suit out.

**Periods:** All one-semester-hours activity classes meet two laboratory hours per week, with the exception of the Majors Only classes which meet three times per week. All two-semester-hour classes meet three hours per week. The amount of class and laboratory time will vary.

**Fees:** Most activity classes require a \$2 lab fee with the exception of the following which are assessed special fees as indicated: Archery \$4, Badminton \$4, Handball \$4, Racquetball \$4, Tennis \$4, Golf \$14, Bowling \$22, Scuba Diving \$40, and Ice Skating \$45.

In those classes which require the student to suit out, a towel and uniform fee of \$8 is assessed.



## PHYSICAL EDUCATION

The following activities are offered:

### ACTIVITY COURSES — DANCE (0-2) 1 hour credit —

- 0130. Country & Western Dance
- 0131. Folk Dance
- 0132. Modern Dance
- 0133. Square Dance
- 0134. Tap Dance

### ACTIVITY COURSES — INDIVIDUAL SPORTS (0-2) 1 hour credit —

- 0101. Archery
- 0105. Badminton
- 0120. Bowling
- 0140. Golf
- 0145. Fencing
- 0150. Handball
- 0166. Racquetball
- 0177. Tennis — Beginning and Intermediate
- 0178. Tennis — Advanced

### ACTIVITY COURSES — TEAM SPORTS (0-2) 1 hour credit —

- 0108. Basketball for Men
- 0112. Basketball for Women
- 0167. Soccer
- 0180. Volleyball for Men
- 0181. Volleyball for Women

### ACTIVITY COURSES — SWIMMING (0-2) 1 hour credit —

- 0170. Beginner and Intermediate Swimming
- 0171. Competitive
- 0172. For Fitness
- 0173. Intermediate and Advanced
- 0174. Scuba Diving\*
- 0175. Synchronized

### ACTIVITY COURSES — RECREATION AND CONDITIONING (0-2) 1 hour credit —

- 0156. Jogging for Fitness
- 0158. Physical Conditioning
- 0159. Physical Education for the Handicapped
- 0168. Recreational Games
- 0183. Weight Control
- 0184. Weight Training

### ACTIVITY COURSES — FOR PHED MAJORS ONLY (0-3) 1 hour credit —

- 1101. Basketball
- 1102. Flag-football
- 1103. Soccer
- 1104. Softball
- 1105. Volleyball
- 1108. Archery
- 1109. Badminton
- 1110. Dance
- 1111. Fencing
- 1112. Outdoor Education
- 1113. Physical Conditioning
- 1114. Tennis
- 1115. Tumbling

### ACTIVITY COURSES — FOR PHED MAJORS ONLY (1-2) 2 hours credit —

- 1201. Gymnastics
- 1202. Track and Field

### ACTIVITY COURSES — SPECIAL PERMISSION CLASSES (0-2) 1 hour credit —

- 0189. Intercollegiate Athletics
- 0191. Special Problems

\*Scuba Course includes PADI (Professional Association of Diving Instructors) Certification and required additional student expense of approximately \$100 above the state lab fee. Students should fully understand this extra cost and should talk with scuba instructor before registering for the course.

## PHYSICAL EDUCATION

- 1243. **Beginning Gymnastics for Men**
- 1244. **Advanced Gymnastics for Men**
- 1246. **Self Defense for Women**
- 1247. **Advanced Life Saving**
- 1248. **Ice Skating**

**1250. CONCEPTS OF HEALTH & FITNESS** — A course based on scientific evidence designed to enable the student to develop a life-long fitness program. Utilizes lecture/lab format and self-paced testing

## HEALTH EDUCATION (HEED)

**1301. NUTRITION (3-0)** 3 hours credit — A study of nutrients essential to an adequate diet and good health; the nutritive values of common foods. Also listed as BIOL 1301. Credit will be granted for only one of these courses. Students seeking certification in Health Education must enroll in HEED 1301. Students seeking credit toward their science requirement must enroll in BIOL 1301. Cannot be counted toward a BS degree in biology.

**1316. FOUNDATIONS OF HEALTH (3-0)** 3 hours credit — Learning experiences designed to develop knowledge, understanding, and appreciation of the functions of the human body, and health practices necessary for the maintenance of a healthy life.

**2290. PHYSICAL EDUCATION PRACTICUM (0-6)** 2 hours credit — Designed to provide supervised practical experience in a physical education setting prior to advanced studies in degree programs. Allows for experience in agency, educational, industrial, or recreational settings. Prerequisite: departmental permission.

**2317. BASIC CONCEPTS IN HUMAN SEXUALITY (3-0)** 3 hours credit — The physiological, psychological, sociological aspects of human sexuality. Listed as BIOL 2317, SOCI 2317, and PSYC 2317. Credit will be granted for one only. Students seeking certification in Health Education must enroll in HEED 2317. Students seeking credit toward their science requirement must enroll in BIOL 2317. Cannot be counted for major credit toward a degree in biology, psychology, or sociology.

**2340. FIRST AID (3-0)** 3 hours credit — Theory and practice in the standard course of the American Red Cross in First Aid.

**3312. DRUGS AND BEHAVIOR (3-0)** 3 hours credit A survey of the psycho-active agents, their therapeutic uses, and their social abuses. Alcohol, nicotine, caffeine, narcotics, hallucinogens, stimulants, and tranquilizers. Also listed as PSYC 3312. Credit will be granted for only one of these courses. May not be taken for major credit toward a degree in psychology.

**3320. HEALTH EDUCATION: METHODS AND MATERIALS (3-0)** 3 hours credit — The selection and organization of content in the secondary school health education program. Methods of presentation of curricular materials. Prerequisite: HEED 1316.

**3321. HEALTH EDUCATION IN THE ELEMENTARY SCHOOL (3-0)** 3 hours credit — Designed to assist in the selection and organization of content in the elementary school health education program. Curriculum materials and various techniques of teaching health. Prerequisite: HEED 1316. Formerly listed as 3221. Credit cannot be received for both 3221 and 3321.

**3330. CONSUMER HEALTH (3-0)** 3 hours credit — Basic principles involved in purchasing goods and services which affect the health of society.

**4312. ENVIRONMENTAL HEALTH AND DISEASE (3-0)** 3 hours credit — Basic principles of ecology as they relate to the general health of society. Control and prevention of diseases.

**4320. AGING — DEATH (3-0)** 3 hours credit — Presents the health aspects of aging and dying. Individual and group health problems faced during the aging process; salient issues and problems in dealing with dying and death.

**4191, 4291, 4391. UNDERGRADUATE CONFERENCE COURSE (Variable credit as arranged)** — Topics assigned on an individual basis covering personal research or study in the designated area. Prerequisite: permission of department chairperson.

**4395. INDIVIDUAL STUDY IN HEALTH EDUCATION (3-0)** 3 hours credit — The completion of an existing course on an individual basis as contracted with an approved faculty member. This procedure is limited to emergency situations, and must be identified through the departmental advising process.

# The Department of POLITICAL SCIENCE

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## REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN POLITICAL SCIENCE

<b>English:</b>	1301, 1302, and six hours in literature.
<b>History:</b>	1311, 1312.
<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent, and 2314.
<b>Mathematics:</b>	Six hours.
<b>Science:</b>	12 hours of science, of which six must be in one science with laboratory.
<b>Electives:</b>	Sufficient to give the total number of hours required for the degree; at least nine hours in any combination to be taken in economics, psychology, or sociology.
<b>Major:</b>	30 hours to include 2311 and 2312; three hours in Methodology (3301, 3310 or 4329 or equivalent); three hours in Political Thought (3313, 4322, 4324, 4325, 4327, or 4328 or equivalent); and at least one course from any four of the five areas listed. <b>Area I Political Behavior and Processes</b> — 3306, 3311, 3327, 4320, 4321, 4326, 4330, 4392, 4395. <b>Area II Comparative Politics</b> — 3302, 3304, 3314, 3316, 3318, 4313, 4315, 4362, 4363, 4364, 4387, 4392, 4395. <b>Area III International Politics</b> — 3329, 4311, 4312, 4334, 4336, 4355, 4360, 4392, 4395. <b>Area IV Public Law</b> — 3330, 3331, 3332, 3333, 3334, 3335, 4331, 4332, 4392, 4395. <b>Area V Public Administration and Policy Studies</b> — 3303, 3305, 3307, 3308, 3309, 3312, 4303, 4304, 4338, 4351, 4352, 4353, 4392, 4395.
<b>Minor:</b>	18 hours, at least six of which must be advanced.
<b>Total:</b>	122 hours, at least 36 of which must be advanced, plus physical education or military science or marching band as required.

### ***Suggested Course Sequence:***

#### **FRESHMAN YEAR**

**First Semester:** ENGL 1301; Foreign Language 1441; Mathematics, 3 hours; HIST 1311; Elective, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 17 hours.

**Second Semester:** ENGL 1302; Foreign Language 1442; Mathematics, 3 hours; HIST 1312; Elective, 3 hours; Physical Education or Military Science — Total Credit 17 hours.

#### **SOPHOMORE YEAR**

**First Semester:** English (2000 literature course), 3 hours; Foreign Language, 3 hours; Science, 3 or 4 hours; POLS 2311; Elective, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 16 to 18 hours.

**Second Semester:** English (2000 literature course), 3 hours; Foreign Language, 3 hours; Science, 3 or 4 hours; POLS 2312; Elective, 3 hours; Physical Education or Military Science — Total Credit 16 to 18 hours.

#### **JUNIOR YEAR**

**First Semester:** Science, 3 or 4 hours; Major 3000 or 4000, 3 hours; Minor 3000 or 4000, 3 hours; Electives, 6 hours — Total Credit 15 or 16 hours.

**Second Semester:** Science, 3 or 4 hours; Major 3000 or 4000, 3 hours; Minor 3000 or 4000, 3 hours; Electives, 6 hours — Total Credit 15 or 16 hours.

#### **SENIOR YEAR**

**First Semester:** Major 3000 or 4000, 9 hours; Electives, 6 hours — Total Credit 15 hours.

**Second Semester:** Major 3000 or 4000, 9 hours; Electives, 6 hours — Total Credit 15 hours.

## **POLITICAL SCIENCE**

### **BACHELOR OF ARTS DEGREE IN POLITICAL SCIENCE — PRE-LAW**

A three-year program is especially designed for students who desire to enter law school upon completion of three years of the political science program. After completion of all courses required in the first year in an approved school of law with a grade average of C or better and compliance with all other UTA degree requirements, a student may receive a Bachelor of Arts Degree from UTA. Most law schools now require an earned baccalaureate degree for admission. Students are encouraged to complete an earned baccalaureate degree prior to admission to law school.

#### **Suggested Course Sequence:**

##### **FRESHMAN YEAR**

**First Semester:** ENGL 1301; HIST 2313; HIST 1311; Mathematics, 3 hours; Foreign Language 1441; Physical Education or Military Science or Marching Band — Total Credit 17 hours.

**Second Semester:** ENGL 1302; HIST 1312; HIST 2314; Mathematics, 3 hours; Foreign Language 1442; Physical Education or Military Science — Total Credit 17 hours.

##### **SOPHOMORE YEAR**

**First Semester:** English (2000 literature course), 3 hours; ECON 2305; POLS 2311; Foreign Language, 3 hours; Biology or Geology, 3 or 4 hours; Physical Education or Military Science or Marching Band — Total Credit 16 to 18 hours.

**Second Semester:** English (2000 literature course), 3 hours; ECON 2306; POLS 2312; Foreign Language, 3 hours; Biology or Geology, 3 or 4 hours; Physical Education or Military Science — Total Credit 16 to 18 hours.

##### **JUNIOR YEAR**

**First Semester:** Political Science 3000 or 4000, 6 hours; Chemistry or Physics, 3 or 4 hours; \*Electives 3000 or 4000, 6 hours — Total Credit 15 or 16 hours.

**Second Semester:** Political Science 3000 or 4000, 9 hours; Chemistry or Physics, 3 or 4 hours; \*Elective 3000 or 4000, 3 hours — Total Credit 15 or 16 hours.

**\*The University of Texas requires, and other law schools recommend, that electives be chosen from among the social sciences, humanities, accounting, or ROTC.**

### **REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN POLITICAL SCIENCE (Criminal Justice Option\*)**

<b>Criminal Justice:</b>	4305 and 4394.
<b>English:</b>	1301, 1302, and six hours in literature.
<b>History:</b>	1311, 1312.
<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent, and 2314.
<b>Mathematics:</b>	Six hours.
<b>Science:</b>	12 hours of science, of which six must be in one science with laboratory.
<b>Electives:</b>	Sufficient to give the total number of hours required for the degree; at least nine hours in any combination to be taken in economics, psychology, or sociology.
<b>Major:</b>	30 hours including 2311, 2312; three hours in methodology (3301, 3310 or 4329); three hours in political thought (3313, 4322, 4324, 4325, 4327, or 4328); 3334, 3335 and 3336; and nine additional advanced hours taken on the advice of the department.
<b>Minor:</b>	18 hours in sociology, including 1311, 2341, 3312, and 3313.
<b>Total:</b>	122 hours, at least 36 of which must be advanced, plus physical education or military science or marching band as required.

**\*Semester by semester sequence will be the same as that for the Bachelor of Arts Degree in Political Science.**

**REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE  
IN POLITICAL SCIENCE  
(Paralegal Option \*)**

<b>English:</b>	1301, 1302, and six hours in literature.
<b>History:</b>	1311, 1312.
<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent, and 2314.
<b>Mathematics:</b>	Six hours.
<b>Science:</b>	12 hours of science, of which six must be in one science with laboratory.
<b>Business Administration:</b>	3311 and 3312.
<b>Areas of Concentration:</b>	Select one of the following groupings:
<b>I. Insurance</b>	BUSA 4329 and 4330.
<b>II. Real Estate</b>	Two courses of the following: REAE 3325, 4310, 4311, 4312, 4319.
<b>III. Taxation</b>	Two courses of the following: ACCT 3315, 4301, 4317.
<b>IV. Criminal Justice</b>	Two courses of the following: CRJU 3335, 3337, 3339.
<b>V. Public Law</b>	CRJU 4322 and POLS 4331 or POLS 4332.
<b>VI. Municipal Law</b>	CRJU 4323 and 4324.
<b>VII. International Law</b>	Two courses of the following: POLS 4334, BUSA 4310, FINA 4322, FINA 4324.
<b>VIII. Labor Law</b>	Two courses of the following: ECON 4330, ECON 4335, POLS 4304.
<b>IX. Litigation</b>	POLS 3330 and POLS 3333.
<b>X. Commercial Law</b>	Courses from the College of Business Administration in consultation with the advisor.
<b>Electives:</b>	Sufficient to give the total number of hours required for the degree.
<b>Major:</b>	30 hours, including 2311, 2312, 3341, 3342, 4390 and 4391; and 12 additional advanced hours taken on the advice of the department.
<b>Minor:</b>	18 hours, of which six must be advanced, from one of the following disciplines: economics, sociology, business administration, accounting, or criminal justice.
<b>Total:</b>	122 hours, at least 36 of which must be advanced, plus physical education or military science or marching band as required.
<b>*Semester by semester sequence will be the same as that for the Bachelor of Arts Degree in Political Science.</b>	

## **POLITICAL SCIENCE**

### **REQUIREMENTS FOR SECONDARY TEACHER CERTIFICATION**

#### **POLITICAL SCIENCE TEACHING FIELD (24 semester hours)**

2311, 2312, plus six semester hours from each of Group A, B, and C

##### **Group A** — U.S. Government and Politics

1301, 3303, 3305, 3306, 3307, 3308, 3309, 3311, 3312, 3327, 3336, 4303, 4304, 4320, 4321, 4326, 4330, 4336, 4338, 4351, 4352, 4353.

##### **Group B** — Political Theory, Public Law, and Methodology

3301, 3310, 3313, 3330, 3331, 3332, 3333, 3334, 3335, 4322, 4324, 4325, 4327, 4328, 4329, 4331, 4332, 4334

##### **Group C** — Comparative Government and International Relations

3302, 3304, 3314, 3316, 3318, 3329, 4311, 4312, 4313, 4315, 4355, 4360, 4362, 4363, 4364, 4387.

#### **POLITICAL SCIENCE (POLS)**

*Chairman: Professor Dawson*

*Professors Cole, Hagard, Hamlett, Richards*

*Associate Professors Knerr, Marshall, Moon, Odom, Saxe, Taborsky, Van Cleve*

*Assistant Professors Clark, Hekman, Hunt, Katsikas, Schmidt, Story*

*Adjunct Professor Raupe*

*Adjunct Assistant Professor Robertson*

**1301. INTRODUCTION TO POLITICS** (3-0) 3 hours credit — Topical and controversial issues in American politics, utilizing contemporary periodicals. May be taken for political science credit only at the freshman level and is not a substitute for POLS 2311 or 2312, nor does it fulfill political science area requirements.

**2311. GOVERNMENT OF THE UNITED STATES** (3-0) 3 hours credit — The constitution and government of the United States. The organization, procedures, and duties of the branches of the government, together with their accomplishments and defects.

**2312. STATE AND LOCAL GOVERNMENT** (3-0) 3 hours credit — The principles and organization of American state, county, and municipal government, together with current problems and the constitution and government of Texas.

**3301. INTRODUCTION TO POLITICAL RESEARCH** (3-0) 3 hours credit — Current methods of political research and simple computer methods. No previous math or computer experience is expected. Fulfills the methodology requirement.

**3302. POLITICS AND SOCIETY IN THE UNITED KINGDOM** (3-0) 3 hours credit — The social and institutional foundations of parliamentary democracy in Great Britain. The development of British political institutions in the social setting of Northern Ireland.

**3303. INTRODUCTION TO PUBLIC ADMINISTRATION** (3-0) 3 hours credit — The scope and development of public administrative organizations; both the traditional and behavioral approaches to the treatment of administrative principles, decision making, and organizational environment.

**3304. INTRODUCTION TO COMPARATIVE POLITICS** (3-0) 3 hours credit — An introduction to cross-national and cross-cultural comparisons of political systems. Special attention given to institutional structure, political process, dynamics of change, and ideology.

**3305. GOVERNMENT IN URBAN AMERICA** (3-0) 3 hours credit — Governmental problems associated with the growth of urban areas and proposed solutions for Texas and elsewhere.

**3306. LEGISLATIVE ORGANIZATION AND PROCEDURE** (3-0) 3 hours credit — A descriptive analysis and evaluation of the organization and procedures of both the national and state legislative bodies.

**3307. COMPARATIVE STATE AND LOCAL POLITICS** (3-0) 3 hours credit — State and local political systems. State and local political components, philosophies, leaders and issues. Prerequisites: POLS 2311 and 2312.

**3308. GOVERNMENT AND THE ECONOMIC ORDER** (3-0) 3 hours credit — The role of government in the regulation of business; administrative structures, policy making and implementation, and judicial relations.

**3309. GOVERNMENT AND ENVIRONMENTAL PROTECTION** (3-0) 3 hours credit — Constitutional, legal, and administrative problems in environmental pollution. Roles of individuals and groups in protecting the environment within the current legal system.

**3310. CONTEMPORARY POLITICAL SCIENCE** (3-0) 3 hours credit — Political science as a developing discipline and profession. Concepts, hypotheses, and materials of contemporary political analysis.

**3311. PUBLIC OPINION** (3-0) 3 hours credit — Measurement of attitudes, public opinion and ideology, the learning and influencing of public opinion, and expression of public opinion in elections and mass political movements. The logic and practice of survey research.

- 3312. INTRODUCTION TO PUBLIC POLICY ANALYSIS** (3-0) 3 hours credit — Concepts of public policy and problems of policy formation, measurement and prediction of outcomes.
- 3313. MODERN CRITICS OF SOCIETY AND POLITICS** (3-0) 3 hours credit — Designed for both political science and other majors. Focus on writers like Banfield, Galbraith, Marcuse, Reich, Revel, Skinner, and Toffler.
- 3314. POLITICAL SYSTEMS OF EASTERN EUROPE** (3-0) 3 hours credit — The political systems of Central and Eastern Europe as they reflect both indigenous institutions and behavioral patterns and their relationship to the Communist Bloc.
- 3316. LATIN AMERICAN POLITICS** (3-0) 3 hours credit — The political development of Latin American nations and various explanations for trends and differences in Latin American politics. Strategies of development; Latin America's relationship with the United States; and contemporary events in Latin America.
- 3318. POLITICAL SYSTEMS OF EAST ASIA** (3-0) 3 hours credit — The political behavior and institutions of representative Asian governments including China, Japan, and Korea. A comparison of the mainland and Taiwan regimes, with implications for United States foreign policy.
- 3327. AMERICAN POLITICAL PARTIES** (3-0) 3 hours credit — The development and characteristics of the American political party system, including systematic goals, formal organizations, membership recruitment, ideological and issue-orientations, electoral and participatory functions, and linkages in the political system.
- 3329. THEORIES OF THE INTERNATIONAL SYSTEM** (3-0) 3 hours credit — Major theories and approaches to the international system. Traditionalist, behavioralist, and post-behavioralist theories rather than institutional, legal, or topical considerations.
- 3330. JUDICIAL BEHAVIOR AND THE JUDICIAL PROCESS** (3-0) 3 hours credit — Decision making, role perception, recruitment and socialization of judges, and the relationship between attitudes and values of justices and their decisions. Role orientations of lawyers, litigants, and interest groups and their relationship to the judicial process.
- 3331. CONTEMPORARY ISSUES IN CIVIL LIBERTIES** (3-0) 3 hours credit — The status and function of civil liberties in modern America emphasizing problem areas of Equal Employment Opportunity, invasion of privacy by government, obscenity and pornography, and corporate and industrial assaults on civil liberties.
- 3332. THE CIVIL LAW SYSTEM** (3-0) 3 hours credit — The development of the civil law system, the counterpart and parallel body of jurisprudence governing the European continent. Derivations, substantive comparative patterns of the Anglo-American system, the organizational facets of the code approach, and the vital importance of a legal system governing majority portions of Western civilization.
- 3333. INTRODUCTION TO JURISPRUDENCE** (3-0) 3 hours credit — The development of American legal concepts and institutions as they have evolved from their Roman, Germanic, and Anglo-Saxon antecedents. Especially recommended for pre-law majors.
- 3334. INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM** (3-0) 3 hours credit — An overview of the entire criminal justice system, with particular attention to the police, probation and parole, the courts, and corrections. May be used as CRJU or POLS 3334, but credit will be given in only one area. Prerequisite: permission of the instructor.
- 3335. CRIMINAL LAW** (3-0) 3 hours credit — The substantive legal provisions of criminal justice; major crimes prohibited by our legal system with stress upon social values. Texas and Anglo-American criminal laws treated and contrasted. May be used as CRJU or POLS 3335, but credit will be given in only one area. Prerequisite: permission of the instructor.
- 3336. POLITICS AND POLICE LEADERSHIP** (3-0) 3 hours credit — Examines the principles of administration, management, politics, and leadership with emphasis on their applicability to law enforcement planning, organization, direction, control, and personnel management. This course may be used as POLS or CRJU 3336, but not both.
- 3341. LEGAL TECHNIQUES** (3-0) 3 hours credit — A stringent training in the basic skills required in the art of legal practice, centered upon the complex techniques needed in legal research and including instruction in the fundamentals of legal writing. Designed to enable a paralegal to gain competence in legal research and writing.
- 3342. LEGAL SYSTEMS** (3-0) 3 hours credit — An intensive and thorough exploration of the operative systems of law in the United States with strong stress on the ways they actually work and their actual operations in the state of Texas. Designed to give the student an intensive grounding in the actual dynamics of the legal professions, a grounding essential to anyone actively working in that system.
- 3390. HONORS COLLOQUIUM** (3-0) 3 hours credit — An interdisciplinary course designed to meet the needs of advanced undergraduates in the Honors Program. Prerequisite: participation in the Honors Program and/or permission of the instructor.
- 4303. PUBLIC ADMINISTRATION AND THE POLITICAL PROCESS** (3-0) 3 hours credit — The relationships of public administration at all levels with democratic institutions, including its interactions in the formulation and execution of public policies with the chief executive, the legislative and judicial branches, political parties, clientele groups, and the public at large.

## **POLITICAL SCIENCE**

- 4304. PUBLIC PERSONNEL ADMINISTRATION (3-0)** 3 hours credit — The quest for more efficient and economical administration of public personnel policies at all levels of government in the United States.
- 4311. THE INTERNATIONAL SYSTEM AND THE THIRD WORLD (3-0)** 3 hours credit — The international system and the Third World. Systemwide and regional variables and the complex patterns of their interrelationships. Formerly listed as 4335. Credit will not be given for both 4311 and 4335.
- 4312. THE AFRO-ASIAN INTERNATIONAL POLITICAL SYSTEM (3-0)** 3 hours credit — The decision-making processes and foreign policies of the Afro-Asian nations, the linkage between foreign and domestic variables, and the interaction and integration among the Afro-Asian political systems. Recommended but not required: POLS 4311.
- 4313. POLITICAL DEVELOPMENT (3-0)** 3 hours credit — The concept of political development, political values, structures, issues, and patterns of political processes in the pre-industrial, industrial, and post-industrial political community.
- 4315. CONSTITUTIONAL AND DEMOCRATIC POLITICAL SYSTEMS (3-0)** 3 hours credit — Ideological foundations and institutional characteristics of constitutional and democratic political systems, with emphasis on Western Europe.
- 4320. GROUP POLITICS AND PARTICIPATION (3-0)** 3 hours credit — The dynamics of group politics and its importance to the political process. Prominent American ethnic groups, including Black America, compared and contrasted as to participation and socialization within an historical/political framework.
- 4321. POLITICAL SOCIALIZATION (3-0)** 3 hours credit — Several major theories of political learning and attitude development. The influence of family, schools, peer groups, major political events, and maturation and their importance in childhood and adult political learning. Current research procedures in political socialization.
- 4322. ISSUES IN POLITICAL THEORY (3-0)** 3 hours credit — Each time this course is offered it will focus on one particular issue central to the study of political theory. Topics such as justice, authority, and citizenship, from a perspective which spans many different historical periods. The aim is to examine the way in which various political theorists have dealt with one recurring problem of political theory.
- 4324. UTOPIAS: POLITICAL SIGNIFICANCE PAST AND PRESENT (3-0)** 3 hours credit — Past attempts at forming alternate political structures and life styles and the degree of success or failure. The effect of these alternatives on existing political institutions.
- 4325. AMERICAN POLITICAL THOUGHT (3-0)** 3 hours credit — American political ideas from the colonial period to the present, as reflected in institutions and the work of political writers and statesmen.
- 4326. ELECTION STRATEGY AND CAMPAIGN MANAGEMENT (3-0)** 3 hours credit — Strategies relating to elections and various aspects of managing campaigns, including the techniques of demographic survey, voting behavior analysis, opinion survey, issue research, and candidate research.
- 4327. POLITICAL IDEAS, ANCIENT AND MEDIEVAL (3-0)** 3 hours credit — Principal theorists and schools of political thought prior to 1500, with emphasis upon those making significant contributions to the political heritage of Western Europe.
- 4328. POLITICAL IDEAS SINCE 1500 (3-0)** 3 hours credit — The development of political thought from Machiavelli to the present. The Reformation, Age of Reason, 19th Century idealists, and modern "isms."
- 4329. RESEARCH METHODS AND DESIGNS IN POLITICAL SCIENCE (3-0)** 3 hours credit — Quantitative methods and research designs used in the study of politics.
- 4330. THE AMERICAN EXECUTIVE (3-0)** 3 hours credit — The development of power and influence of the American executive and the limitations on that power. Principal focus on the political, administrative, and leadership roles of national and state executives.
- 4331. THE UNITED STATES CONSTITUTION: STRUCTURE (3-0)** 3 hours credit — The structure of government in the United States — the principles of separation of powers, the federal system, and the relation of the judicial process to these topics.
- 4332. THE UNITED STATES CONSTITUTION: FUNCTIONS (3-0)** 3 hours credit — The judicial process in relation to the powers and functions of government — national and state — and the safeguard of fundamental rights of citizens.
- 4334. INTERNATIONAL LAW (3-0)** 3 hours credit — Legal principles determining the international order; methods for the settlement of disputes, major provisions of the law of war and peace, the legal condition of the state, and the new problems posed by the exploration of outer space.
- 4336. CONTEMPORARY UNITED STATES FOREIGN POLICY (3-0)** 3 hours credit — The judicial process in United States foreign policy. Historical background and possible solution for current foreign political problems.
- 4338. NATIONAL SECURITY POLICY (3-0)** 3 hours credit — Contemporary military strategy, the formulation of security in the United States and current assumptions, goals, alternative strategies, and "costs."



- 4351. ENERGY POLICY AND ADMINISTRATION** (3-0) 3 hours credit — Basic issues underlying the politics, economics, and administration of energy policy within the United States. Emerging energy sources, such as solar and geothermal. Prerequisites: POLS 2311 and 2312.
- 4352. EDUCATION AND PUBLIC POLICY** (3-0) 3 hours credit — Examines a range of educational policy issues. The impact of federal policies and court decisions on state and local educational policy-making, school board politics, and the impact of educational research on policy makers.
- 4353. PUBLIC BUDGETING AND TAXATION** (3-0) 3 hours credit — A survey of the concepts, processes, and policy impacts of taxation and public budgeting. Individual, group, and institutional roles in taxes and budgeting emphasized. Introduction to current research techniques in political economy.
- 4355. INTERNATIONAL POLITICS** (3-0) 3 hours credit — The background, principles, practices, risks, and problems of international relations and politics in the world composed of nation-states; international conflicts, their bases, and mechanisms for their solution. Formerly listed as POLS 3328; credit will not be given for both 3328 and 4355.
- 4360. INTERNATIONAL ORGANIZATION** (3-0) 3 hours credit — The development, principles, functions, and problems of international organizations and intergovernmental agencies. Credit may not be given for both 3325 (discontinued) and 4360.
- 4362. THE U.S.S.R. TODAY** (3-0) 3 hours credit — The metamorphosis of the Communist party and the current political philosophy of the Soviet State. Insight into the mind of the typical Soviet citizen. Prerequisite: consent of the instructor. May be used for POLS, HIST, or RUSS 4362; credit will be given in only one area.
- 4363. TOPICS OF THE SOVIET UNION** (3-0) 3 hours credit — Also listed as RUSS and HIST 4363, but credit will be given in only one area. The history, government, and activities of the Soviet Union compared with those of the United States as a basis for understanding the relationships between the two countries. Film, lectures, and guest speakers from on and off campus. Prerequisites: junior standing and permission of the department. POLS 4362 is recommended but not required as a prerequisite.
- 4364. THE SINO-SOVIET RELATIONSHIP** (3-0) 3 hours credit — The interaction of the two largest Communist states — the People's Republic of China and the Union of Soviet Socialist Republics. A broad cultural-intellectual perspective utilized to contrast the recent history, philosophy and unique cultures of the Chinese and Soviet peoples. The political systems, and varying applications of Marxist philosophy. Also listed as HIST, PHIL, and RUSS 4364, but credit will be given in only one area. Prerequisite: permission of instructor.
- 4387. EVOLUTION OF COMMUNIST SYSTEMS** (3-0) 3 hours credit — Historical and philosophical development of communism traced from the era of Marx and Engels to the present. Philosophies of the principal molders of Soviet communism; the resulting national forms — such as Maoism, Titoism, and Castroism; and a comparative analysis of the divergent communist system. Also listed as RUSS, PHIL, and HIST 4387, but credit will be given in only one area. Prerequisite: permission of the department.
- 4390. LEGAL INTERNSHIP** (3-0) 3 hours credit — Can be repeated once with approval of advisor. Practical experience gained while serving in a law office or legally related context under professional supervision with special projects under the guidance of a faculty member.
- 4391. CONFERENCE COURSE — DIRECTED LEGAL STUDIES** (3-0) 3 hours credit — A research project in the field of specialization, under careful supervision.
- 4392. SPECIAL TOPICS IN POLITICAL SCIENCE** (3-0) 3 hours credit — May be repeated for credit as topics change. Prerequisite: consent of department.
- 4393. COOPERATIVE EDUCATION** (3-0) 3 hours credit — Supervised employment in a government or government-related organization with the student performing duties related to the academic curricula of political science. Students are required to submit a term paper, case study, or an approved academic project related to the work performed. A maximum of six semester hours of credit in Cooperative Education may be used to satisfy a political science elective requirement for graduation.
- 4394. HONORS THESIS/SENIOR PROJECT** (3-0) 3 hours credit — Applies only to participants in the Liberal Arts Honors Program, and fulfills the requirement that during the participant's senior year, the student must complete a thesis or a project of equivalent difficulty under the direction of a faculty member in the major department.
- 4395. CONFERENCE COURSE — READINGS IN POLITICAL SCIENCE** (3-0) 3 hours credit — Designed for the advanced undergraduate student who is capable of independent study. An in-depth examination of one area of political science not necessarily covered in regular course work. May be repeated for credit when the subject matter varies. May be taken only once in any one area. Prerequisite: written consent of the instructor.

# RELIGION

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*Paul Phillips, Director, and David Hobby, Church of Christ Bible Chair*

*James Luecke, Campus Minister, Lutheran Student Center*

*David Naugle, Evangelical Non-denominational Bible Chair*

*Donald Spinks, Campus Minister, Wesley Foundation*

*Charles Cruce, Campus Minister, Baptist Student Center*

Religion courses are taught at church centers adjacent to the campus with no expense to the University. They are accredited by the University. Not more than nine hours of religion may be used as an elective in a degree program.

## RELIGION (RELI)

**1104. COMPARATIVE RELIGION** (1-0) 1 hour credit — Comparison and contrast of the major religions of mankind.

**1105. THE BOOK OF HEBREWS** (1-0) 1 hour credit — A study of the book, giving attention to backgrounds and authorship.

**1106. BIBLE GEOGRAPHY** (1-0) 1 hour credit — The geography of Bible lands in the light of the Bible and scientific research.

**1107. INTRODUCTION TO STUDY OF THE BIBLE** (1-0) 1 hour credit — Various Bible-related topics, including inspiration of the Bible, how our Bible came to us, integrity of the biblical text, importance of proper attitude in Bible study, methods of Bible study, rules of interpretation, and aids in Bible study.

**1202. THE BOOK OF ROMANS** (2-0) 2 hours credit — The historical background and purpose of the book. The chapter-by-chapter analysis includes its doctrinal and practical aspects.

**1311. OLD TESTAMENT SURVEY** (3-0) 3 hours credit — Helps students understand the Old Testament by enabling them in some measure to enter into the life of the communities that produced it. The books of the Old Testament and the authorship, time of writing, purpose, and general content of each book. The history of the Hebrew people and their faith.

**1312. NEW TESTAMENT SURVEY** (3-0) 3 hours credit — The New Testament, with consideration to the historical background out of which the Christian faith arose. The general content, authorship, time, and purpose of each book.

**1313. CHRISTIAN DENOMINATIONS IN AMERICA** (3-0) 3 hours credit — A comparative study of the beliefs and practices of Christian denominations in America. Each body will be presented from its own perspective and with its own rationale.

**2213. THE BEGINNINGS OF CHRISTIANITY** (2-0) 2 hours credit — The beginning and early history of Christianity; chapter-by-chapter analysis of the Book of Acts.

**2214. THE BOOK OF REVELATION** (2-0) 2 hours credit — A chapter-by-chapter analysis. A careful study of the following main themes: the continual struggle between the forces of righteousness and the forces of evil; the final victory of Christ and his church; and the reign of God and his people in the new Jerusalem.

**2217. THE GENERAL EPISTLES** (2-0) 2 hours credit — A study of the historical background, purpose, and text of the seven letters written by James, Peter, John, and Jude. Chapter-by-chapter analysis with an emphasis on their meaning in the life of modern man.

**2311. THE LIFE OF CHRIST** (3-0) 3 hours credit — The birth, childhood, works, and teachings of Jesus as recorded by the gospels. The life of Christ in the context of the religious, social, political, and economic background of the First Century.

**2317. CHURCH HISTORY** (3-0) 3 hours credit — A survey of church history from the beginning of the church to modern times.

**2321. NEW TESTAMENT GREEK GRAMMAR** (3-0) 3 hours credit — Elementary grammar of the Greek of the New Testament with emphasis on inflections and vocabulary. Cannot be counted as part of any foreign language degree requirement, but may be counted as an elective.

**2322. TRANSLATION AND READING OF NEW TESTAMENT GREEK** (3-0) 3 hours credit — A continuation of RELI 2321; simple readings in the Greek New Testament. Cannot be counted as part of any foreign language degree requirement, but may be counted as an elective. Prerequisite: RELI 2321.

**3101. THE BIBLICAL CONCEPT OF MARRIAGE AND THE FAMILY** (1-0) 1 hour credit — Marriage and the family from a biblical perspective. Passages in the Bible that relate to the subject will be studied in an attempt to help the student establish a fundamental foundation for home life.

**3302. CONTEMPORARY THEOLOGY** (3-0) 3 hours credit — A survey of 20th Century theological thought, including major trends and outstanding individual thinkers. Designed for the advanced student.

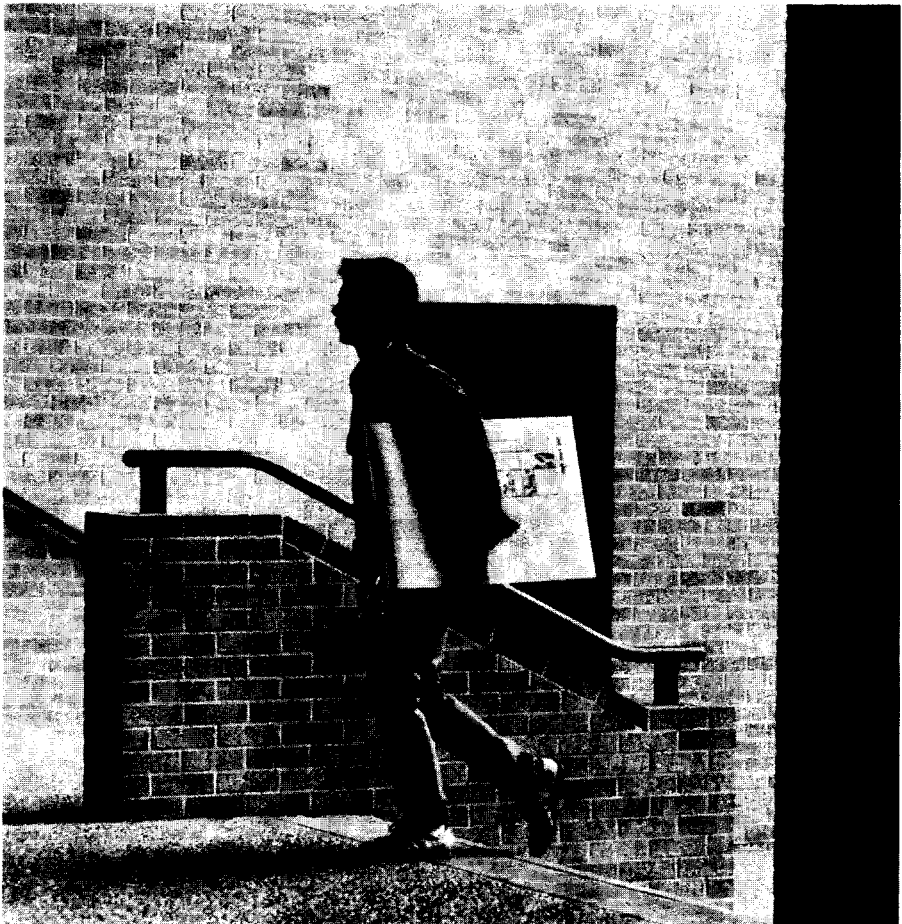
**3303. CHRISTIAN ETHICS (3-0)** 3 hours credit — The biblical and theological understanding for formulating a Christian ethical position. The basic philosophical position involved in decision making and a consideration of how one makes decisions that reflect an understanding of and appreciation for the Christian faith.

**3311. THE HEBREW PROPHETS (3-0)** 3 hours credit — The prophetic movement and the influence of the prophets in the life and faith of Israel. Emphasis on the major prophets and their writings with some attention given to the theological and ethical significance of the prophetic books of the Old Testament.

**3312. LIFE AND WRITINGS OF PAUL (3-0)** 3 hours credit — The early expansion of Christianity and the missionary journeys and writings of Paul. The foundation and teachings of the church.

**4191, 4291, 4391. CONFERENCE COURSE (Variable credit as arranged)** Topics assigned on an individual basis covering personal research or study in the designated areas. Prerequisite: permission of the instructor.

**4193, 4293, 4393. CHRISTIAN EVIDENCES — CONFERENCE COURSE (Variable credit from 1 to 3 hours as arranged)** — Personal research or study in the areas of definitions, arguments for and against the existence of God, philosophies toward miracles, conflicts between science and theology, inspiration and alleged contradictions of the Bible; a basis for value judgments within Christianity. May be repeated for credit.



# The Department of **SOCIOLOGY, ANTHROPOLOGY, AND SOCIAL WORK**

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The principal common educational objective in the Department of Sociology, Anthropology, and Social Work is to develop a systematic understanding of social behavior, human culture, and social institutions. Knowledge of man's social and cultural relationships are vital to a meaningful perspective on and understanding of the society in which we live. Contemporary societies are characterized by diversity, rapid change, complex organization, and extensive specialization. Programs of study in the Department of Sociology, Anthropology, and Social Work pursue the challenge of (1) creating and disseminating general knowledge that will render this world more understandable and (2) providing an educational base for more effective and humane planning and social intervention in society. Each of the programs of study relates to this general objective in a somewhat different manner.

## **SOCIOLOGY**

A program of study in sociology has three principal objectives: (1) to instill the ability to analyze human relationships from a sociological perspective, (2) to develop the theoretical, methodological, and statistical skills necessary for asking and answering sociological questions, and (3) to enhance individuals' awareness of the relationship between events in their own lives and the structure of the society in which they live.

## **ANTHROPOLOGY**

A program of study in cultural anthropology has the objective of describing and analyzing the entire spectrum of man's customs, beliefs, values, social systems and artifacts. An approach which compares both coexistent cultural groups and cultures changing through time is used. Students may minor in Anthropology.

## **SOCIAL WORK**

A program of study in social work has as its primary educational objective preparation for beginning professional social work practice. The sequence of courses, designed to include academic social work and field experience requirements in a liberal arts context, enables the student upon graduation to work in a variety of social work and social welfare agencies and settings. A secondary purpose of the program is preparation for graduate study in social work or graduate study in another profession or discipline for which baccalaureate social work education would be appropriate. The program is fully accredited by the Council on Social Work Education.

**REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE  
IN SOCIOLOGY**

<b>Economics or Psychology:</b>	ECON 2305 or 2337 or PSYC 1315 or 3300.
<b>English:</b>	1301, 1302, and six additional hours at the 2000 level or above.
<b>Foreign Language:</b>	1441, 1442, and six additional hours at the 2000 level or above.
<b>Political Science:</b>	2311 and 2312.
<b>History:</b>	1311 and 1312, or six hours of the following: *3360, 3362, 3342, 3347.
<b>Mathematics:</b>	1302 and 1318 or six hours approved by departmental advisor.
<b>Philosophy:</b>	Three hours.
<b>Science:</b>	12 hours of science, six of which are to be in one science with laboratory.
<b>Electives:</b>	Sufficient to give the total number of hours required for the degree.
<b>Major:</b>	39 hours including the following: 1311, 2341, 3352 and 4311; one course (three hours) selected from anthropology, and one course selected from social work.
<b>Total:</b>	125 hours, at least 36 of which must be advanced, plus physical education or military science or marching band as required.

\*Must be taken in junior or senior year.

**Suggested Course Sequence:**

**FRESHMAN YEAR**

**First Semester:** ENGL 1301; Foreign Language 1441; Mathematics, 3 hours; SOCI 1311; HIST 1311; Physical Education or Military Science or Marching Band — Total Credit 17 hours.

**Second Semester:** ENGL 1302; Foreign Language 1442; Mathematics, 3 hours; Sociology, 3 hours; Philosophy, 3 hours; Physical Education or Military Science — Total Credit 17 hours.

**SOPHOMORE YEAR**

**First Semester:** POLS 2311; Foreign Language (2000-level), 3 hours; Science, 3 or 4 hours; Elective, 3 hours; SOCI 2341; Physical Education or Military Science or Marching Band — Total Credit 16 to 18 hours.

**Second Semester:** POLS 2312; Foreign Language (2000-level), 3 hours; Science, 3 or 4 hours; SOCI 3352; Sociology (3000-level), 3 hours; Physical Education or Military Science — Total Credit 16 to 18 hours.

**JUNIOR YEAR**

**First Semester:** Science, 3 or 4 hours; ECON 2305 or PSYC 1315; HIST 1312; Sociology (3000-level), 9 hours — Total Credit 18 or 19 hours.

**Second Semester:** Science, 3 or 4 hours; Sociology, 3 hours; Electives, 9 hours — Total Credit 15 hours.

**SENIOR YEAR**

**First Semester:** Sociology (4000-level), 6 hours; English (advanced), 3 hours; Electives, 6 hours — Total Credit 15 hours.

**Second Semester:** Sociology (4000-level), 6 hours; English (advanced), 3 hours; Electives, 6 hours — Total Credit 15 hours.

## SOCIOLOGY

### REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN SOCIOLOGY (\* Teacher Certification Plan)

Students must be currently meeting all lower division requirements before enrolling in upper division courses.

<b>English:</b>	1301, 1302, and six hours in literature.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Foreign Language:</b>	1441, 1442, 2313, 2314 or equivalent.
<b>Mathematics:</b>	Six hours: 1302, 1318 recommended.
<b>Science:</b>	12 hours of science, six hours of which must be in one science with laboratory.
<b>Major:</b>	24 hours including 1311, 2341, 3352, and 4311. The prescribed number of advanced hours from the following groups: <b>Group I:</b> Three hours from 3317, 3319, 3321, 4317, 4331. <b>Group II:</b> Three hours from 3310, 3338, 3341, 3350, 3351, 3353, 4310, 4312, 4313, 4319. <b>Group III:</b> Three hours from 3315, 3320, 3323, 3354, 4318, 4335, 4361. <b>Group IV:</b> Three hours from 1312, 3312, 3313, 3355, 4303, 4314.
<b>Minor:</b>	24 hours, at least 12 of which must be beyond the second year in an approved teaching field.
<b>Electives:</b>	Six hours.
<b>Education:</b>	12 hours as prescribed by the Center for Professional Teacher Education.
<b>Student Teaching:</b>	EDUC 4650.
<b>Total:</b>	128 hours, of which 36 must be advanced, plus physical education or military science or marching band as required.

\*Students who intend to pursue this plan should consult with the undergraduate advisor in the Department of Sociology, Anthropology, and Social Work.

**REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE  
IN SOCIOLOGY  
(\* \* Teacher Certification Plan — Social Studies Composite)**

Students must be currently meeting all lower division requirements before enrolling in upper division courses.

<b>English:</b>	1301, 1302, and six hours in literature.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Foreign Language:</b>	1441, 1442, 2313, 2314 or equivalent.
<b>Mathematics:</b>	Six hours, 1302 and 1318 recommended.
<b>Science:</b>	12 hours of science, six hours of which must be in one science with laboratory.
<b>Major:</b>	24 hours of sociology including 1311, 2341, 3352, and 4311.
<b>Social Studies:</b>	24 hours to include ANTH 3343*, ECON 2305 or 2337; HIST 1301, 1302, and 3363 or three advanced hours; political science, six advanced hours; PSYC 3300.
<b>Electives:</b>	Six hours.
<b>Education:</b>	12 hours as follows: 3310, 4311, 4312 and three hours education electives.
<b>Student Teaching:</b>	EDUC 4650.
<b>Total:</b>	128 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

\* ANTH 3343 is a course entitled **Ecological and Cultural Geography**.

\*\* Students who intend to pursue this plan should consult with the undergraduate advisor in the Department of Sociology, Anthropology, and Social Work.



# ANTHROPOLOGY

## REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN ANTHROPOLOGY

<b>English:</b>	1301, 1302, and six additional hours.
<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent, and 2314.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312, or six hours of the following: 3342*, 3347*, 3360*, 3362*.
<b>Mathematics:</b>	Six hours.
<b>Science:</b>	12 hours of science, six of which must be in one science with laboratory.
<b>Art:</b>	Three hours.
<b>Electives:</b>	Sufficient to give the total number of hours required for the degree.
<b>Department Requirements:</b>	12 hours in anthropology, social work, and sociology, with a minimum of three hours in each program.**
<b>Major:</b>	36 hours, with 27 hours in anthropology. Department requirements are included in the major.***
<b>Minor:</b>	18 hours, of which six must be advanced.
<b>Total:</b>	125 hours, at least 36 of which must be advanced, plus physical education or military science or marching band as required.

\*Must be taken in junior or senior year.

\*\*Department requirements must be completed before the end of the sixth semester or the completion of 95 hours of credit.

\*\*\*Courses in sociology and social work may be counted toward the major with consent of advisor.

### **Suggested Course Sequence:**

#### **FRESHMAN YEAR**

**First Semester:** ENGL 1301; Foreign Language, 4 hours; Mathematics, 3 hours; History, 3 hours; Anthropology, 3 hours; Physical Education or Military Science 1411 or Marching Band — Total Credit 17 hours.

**Second Semester:** ENGL 1302; Foreign Language, 4 hours; Mathematics, 3 hours; Sociology, 3 hours; Anthropology, 3 hours; Physical Education or Military Science 1142 — Total Credit 17 hours.

#### **SOPHOMORE YEAR**

**First Semester:** POLS 2311; Foreign Language, 3 hours; Science, 3 or 4 hours; Elective, 3 hours; Anthropology, 3 hours; Physical Education or Military Science 2241 or Marching Band — Total Credit 16 to 18 hours.

**Second Semester:** POLS 2312; Foreign Language, 3 hours; Science, 3 or 4 hours; Elective, 3 hours; Anthropology, 3 hours; Physical Education or Military Science 2242 — Total Credit 16 to 18 hours.

#### **JUNIOR YEAR**

**First Semester:** Science, 3 or 4 hours; History, 3 hours; Minor, 6 hours; Anthropology, 3 hours — Total Credit 15 or 16 hours.

**Second Semester:** Science, 3 or 4 hours; Sociology, 3 hours; Minor, 6 hours; Anthropology, 3 hours — Total Credit 15 or 16 hours.

#### **SENIOR YEAR**

**First Semester:** English, 3 hours; Anthropology, 3 hours; Social Work, 3 hours; Minor, 6 hours; Electives, 3 hours — Total 18 hours.

**Second Semester:** Anthropology, 6 hours; English, 3 hours; Minor, 3 hours; Elective, 3 hours — Total Credit 15 hours.



**REQUIREMENTS FOR A BACHELOR OF SOCIAL WORK DEGREE**

<b>Economics:</b>	2337 or 3301.
<b>English:</b>	301, 1302, and six additional hours at the 2000 level or above.
<b>Foreign Language:</b>	1441, 1442, and six additional hours at the 2000 level or above (Spanish strongly encouraged).
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312, or six hours of the following *3342, 3347, 3360, 3362.
<b>Mathematics:</b>	1302 and 1318 or six hours approved by program advisor.
<b>Philosophy:</b>	Three hours.
<b>Science:</b>	12 hours of science, six of which are to be in one science with laboratory (biology strongly encouraged).
<b>Department Requirements:</b>	SOCI 1311, 2341, and 3352. Plus six additional hours of upper level departmental electives (to include one course in anthropology).**
<b>Major:</b>	31 hours including 2311, 2313, 3311, 3312, 3321, 3322, 3325, 4580, 4581.
<b>Electives:</b>	Sufficient to give the total number of hours required for the degree.
<b>Total:</b>	126 hours, at least 36 of which must be advanced, plus physical education or military science or marching band as required.

\*Must be taken in junior or senior year.

\*\*Department requirements must be completed before the end of the sixth semester or before the completion of 95 hours of credit.

**Suggested Course Sequence:**

**FRESHMAN YEAR**

**First Semester:** ENGL 1301; Foreign Language 1441; Biology, 4 hours; Mathematics, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 15 hours.

**Second Semester:** ENGL 1302; Foreign Language 1442; Mathematics, 3 hours; HIST 1311; SOCI 1311; Physical Education or Military Science — Total Credit 17 hours.

**SOPHOMORE YEAR**

**First Semester:** Foreign Language (2000-level), 3 hours; HIST 1312; POLS 2311; Philosophy, 3 hours; SOWK 2311; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 hours.

**Second Semester:** Foreign Language (2000-level), 3 hours; POLS 2312; Biology, 4 hours; SOCI 2341; SOWK 2313; Economics, 3 hours — Total Credit 19 hours.

**JUNIOR YEAR**

**First Semester:** Science, 4 hours; SOCI 3352; SOWK 3311; SOCI 4311; Elective, 3 hours; Physical Education, 1 hour — Total Credit 17 hours.

**Second Semester:** English (advanced), 3 hours; SOWK 3321; SOWK 3312; Elective, 6 hours — Total Credit 15 hours.

**SENIOR YEAR**

**First Semester:** English (advanced), 3 hours; SOWK 3304; SOWK 4580; SOWK 3322; Electives, 3 hours — Total Credit 17 hours.

**Second Semester:** SOWK 3325; SOWK 4581; Electives, 6 hours — Total Credit 14 hours.

## **SOCIOLOGY**

### **SOCIOLOGY, ANTHROPOLOGY, AND SOCIAL WORK**

*Chairman: Professor Ramsey*

*Professors Taylor, Vidal*

*Associate Professors Anderson, Bastien, Eve, Jones, Shupe, Stacey, Watkins, Weed*

*Assistant Professors Colby, Greenstein, Harrold, Kieffer, Robbins, Rudowski*

*Specialists Hisanaga, Inget*

### **SOCIOLOGY (SOCI)**

**1311. INTRODUCTION TO SOCIOLOGY** (3-0) 3 hours credit — A scientific approach to the analysis and explanation of culture, personality, and social organization. The social processes and mechanisms of interaction involved in the natural process of cultural development, dissemination, assimilation, and the institutions of the group.

**1312. TOPICS IN SOCIAL PROBLEMS** (3-0) 3 hours credit — Topics will deal with social problems emerging out of the process of social change, or social disorganization, or power and intergroup conflict. See instructor for topics. May be repeated for credit whenever content varies.

**1316. CONTEMPORARY PROBLEMS IN CRIMINAL JUSTICE** (3-0) 3 hours credit — Current significant problems faced by various agencies in the criminal justice system and solutions for these problems. Current materials on criminal justice activities and up-to-date sources of information. May be used as SOCI or CRJU 1316, but not both.

**2308. WOMEN IN THE MODERN WORLD** (3-0) 3 hours credit — The role, position, and consciousness of modern woman from various disciplinary perspectives. Instructors are drawn from several departments and their approach to the modern feminine experience is broadly humanistic and self-consciously interdisciplinary. The problems, progress and possibilities of women. Also offered as ENGL 2308; credit will be granted only once. Cannot be used for major credit toward a degree in English or sociology.

**2317. BASIC CONCEPTS IN HUMAN SEXUALITY** (3-0) 3 hours credit — The physiological, psychological, and sociological aspects of human sexuality. Also listed as BIOL 2317, HEED 2317, and PSYC 2317. Credit will be granted for one of these four courses only. Students seeking certification in Health Education must enroll in HEED 2317. Students seeking credit toward their science requirement must enroll in BIOL 2317. Cannot be counted for major credit toward a degree in biology, psychology, or sociology.

**2341. INTRODUCTION TO SOCIAL RESEARCH** (2-3) 3 hours credit — Required of all sociology majors. Methods of setting up a research project will be covered, including the collection and analysis of data. Prerequisite: SOCI 1311 or 1312, or permission of the instructor.

**3300. ADVANCED PRINCIPLES OF SOCIOLOGY** (3-0) 3 hours credit — An intensive and critical analysis of the concepts in sociology. Principles of sociology reviewed in terms of their influence in furthering an understanding of the social order. Prerequisite: SOCI 1311 or equivalent.

**3310. THE FAMILY** (3-0) 3 hours credit — A study of the family as one of the basic social institutions, including the historical and current form. The point of view will be the basic functions of social control and socialization. Prerequisite: SOCI 1311 or 1312, or permission of the instructor.

**3312. JUVENILE DELINQUENCY** (3-0) 3 hours credit — The delinquent as a person and delinquency as a social problem, theories of delinquency, and methods of correctional treatment and preventive programs. Prerequisite: SOCI 1311 or 1312, or permission of the instructor.

**3313. CRIMINOLOGY** (3-0) 3 hours credit — A general survey of the nature and causes of crime; the processes of criminal maturation and behavior; punishment and penal systems; and correctional treatment and crime prevention. May be used as SOCI or CRJU 3313, but not both. Prerequisite: SOCI 1311 or 1312, or permission of the instructor.

**3315. ENERGY, POLLUTION, AND ENVIRONMENT** (3-0) 3 hours credit — The relationship between man and his social environment. Major content areas include social ecology, patterns of energy consumption and conservation, and environmental problems.

**3317. INDIVIDUAL AND SOCIETY** (3-0) 3 hours credit — A sociological approach to individual behavior covering a selection of the following topics: social power and individual conformity, alienation in interpersonal relations, altruism and aggression, verbal and non-verbal communication, social exchange as a basis of social organization, perceiving the self and others, role theory and interaction process analysis, the influence of urban environments, non-experimental techniques of data gathering, the impact of the media, and collective behavior.

**3319. SMALL GROUPS** (3-0) 3 hours credit — The process and structures of small-scale interaction systems, including an analysis of the process of leadership, the exercise of influence, the effect of groups on individuals and of individuals on groups, the relation and function of the small group as a part of a larger whole, and the process of group formation, development, and disintegration. Prerequisite: SOCI 1311 or 1312, or permission of the instructor.

**3320. DEVIANCE: SOCIAL AND PERSONAL** (3-0) 3 hours credit — Theoretical perspectives on societal definitions of behavior as deviant or disorganized. Selected studies, representative of current problems, examined critically in terms of the structural-cultural conditions of contemporary

society. May be repeated as the topics vary. Prerequisite: SOCI 1311 or 1312, or permission of the instructor.

**3321. SOCIALIZATION AND SOCIAL CONTROL (3-0)** 3 hours credit — The relationship between social structure and the individual. The influence of social factors on cognitive development, personality formation, and the behavior of individuals throughout the life-cycle. The effect of socialization on conformity and deviance. Prerequisite: SOCI 1311 or permission of the instructor.

**3323. RIOTS, FADS, CULTS, AND SOCIAL MOVEMENTS (3-0)** 3 hours credit — The social origins, leadership, ideology, and organizational patterns of collective behavior and social movements with attention to their role in effecting social change.

**3326. SOCIOLOGY OF LANGUAGE (3-0)** 3 hours credit — Language behavior as a social variable. The role of language in international relations and cross-cultural contact, as well as the social position of language minorities including the deaf.

**3338. COMPARATIVE STUDY OF SOCIETY (3-0)** 3 hours credit — Cross cultural study of social institutions such as the family, religion, government, and economy. The cultural values and social organization of different societies and how they influence group behavior and in turn are influenced by it. Prerequisite: SOCI 1311 or the permission of the instructor.

**3340. SOCIOLOGY OF EDUCATION (3-0)** 3 hours credit — Analysis of social relations between the school and society, teachers and parents, teachers and school management, and other relevant relationships. Emphasis on cooperation and conflict, values, complex organizational structure, and social change. Prerequisite: background in sociology or education.

**3341. OCCUPATIONS AND PROFESSIONS (3-0)** 3 hours credit — The development, occupational structures, and future trends of occupations and professions. Occupational roles in societal organization generally and in economic, family, and educational institutions in particular. Prerequisite: SOCI 1311.

**3350. COMPLEX ORGANIZATIONS (3-0)** 3 hours credit — An analysis of the development, structure, and operation of formal organizations in society, with emphasis on internal processes, the effects of technology, and variations in the institutional setting. Prerequisite: SOCI 1311 or permission of instructor.

**3351. INDUSTRIAL SOCIOLOGY (2-2)** 3 hours credit — Industrialism as a type of social organization; the relation of industry to social structure, social movements, and associated patterns; social organization within the plant; industry and personality. Prerequisite: SOCI 1311 or 1312, or permission of the instructor.

**3352. SOCIAL STATISTICS (2-2)** 3 hours credit — Descriptive statistics which include measures of central tendency, measures of dispersion, and measures of association. Emphasis on probability theory and testing hypotheses. Specific models include T-Test, chi-square, gamma, lambda, theta, analysis of variance and covariance, regression and correlation analysis. Prerequisite: SOCI 1311, MATH 1302 or its equivalent or permission of instructor.

**3353. THE URBAN COMMUNITY (2-2)** 3 hours credit — The processes of urbanization and the conditions of urban life. The nature of urban social relationships, the organization of city life, urban ecological patterns and demographic conditions, and the influences of urban life. Prerequisite: SOCI 1311 or permission of the instructor.

**3354. POPULATION AND URBAN SOCIETY (2-2)** 3 hours credit — The factors and processes determining population size, composition, and distribution. The relationship of population to social organizations and human welfare, recent population trends, policies, and programs.

**3355. SOCIOLOGY AND URBAN PLANNING (2-2)** 3 hours credit — Social elements in comprehensive urban planning. Citizen participation in planning, welfare, housing, recreation, and manpower planning. Prerequisite: SOCI 1311.

**3390. HONORS COLLOQUIUM (3-0)** 3 hours credit — An interdisciplinary course designed to meet the needs of advanced undergraduates in the Honors Program. Prerequisite: participation in the Honors Program and/or permission of instructor.

**4191, 4291, 4391. CONFERENCE COURSE (Variable credit from 1 to 3 semester hours as arranged)** — Topics assigned on an individual basis covering personal research or study in the designated areas. Prerequisite: permission of the instructor.

**4303. WOMEN IN SOCIETY (3-0)** 3 hours credit — The role of women in American society. The socialization of sex roles and subsequent institutional role-casting by society. The issues of women in the family and in educational, political, economic, and mass media sectors of society. Possible ramifications of the changing role of women for all of American society.

**4304. CORRECTIONS AND PENOLOGY (3-0)** 3 hours credit — Examination, analysis, and evaluation of existing corrections systems and their prognosis. Independent study, research, observation, and participation. May be used as SOCI or CRJU 4304, but not both. Prerequisite: SOCI 1311, or permission of the instructor.

**4310. MINORITIES (3-0)** 3 hours credit — The role of racial and minority categories in the social order. The role, and the associated problems, of groups within the American culture and the impact of these persons on the total cultural milieu. Prerequisite: SOCI 1311 or 1312, or permission of the instructor.

## **SOCIOLOGY**

- 4311. SOCIOLOGICAL THEORY I (3-0)** 3 hours credit — The nature and function of sociological theory and the systematic organization of concepts and principles for the explanation of social phenomena as a guide for social research. Prerequisite: SOCI 1311 or 1312, or permission of the instructor.
- 4312. SOCIAL STRATIFICATION (3-0)** 3 hours credit — The processes by which class, caste, and status develop in a society. The criterion and the manner in which power develops and operates in a society. Prerequisite: SOCI 1311 or 1312, or permission of the instructor.
- 4313. THE SOCIOLOGY OF RELIGION (3-0)** 3 hours credit — The sociological aspects of religion, the social function of religion, and the relationship between religion and social change. Prerequisite: SOCI 1311 or 1312, or permission of the instructor.
- 4314. SOCIOLOGY OF AGING (3-0)** 3 hours credit — The social impact of extended life expectancy on individual and group interaction patterns, particularly in the areas of employment, retirement, health, family relations, housing, finances, and community participation. The major sociological theories of aging in light of current research. Prerequisite: SOCI 1311 or permission of the instructor.
- 4315. VIOLENCE IN SOCIETY (3-0)** 3 hours credit — Violence as a group process directed toward social change. Historical perspectives, current events, preventive and control techniques, public reaction, and individual behavior. Prerequisite: SOCI 1311, or permission of the instructor.
- 4317. SOCIOLOGICAL TOPICS IN SOCIAL PSYCHOLOGY (3-0)** 3 hours credit — Covers a different topic each semester. Among the possible topics are social movement, mass communications, social control, collective behavior, primary groups, social attitudes, race relations, micro-social theory, social interaction, and person in environment. Prerequisite: SOCI 1311, or 3317 or permission of instructor.
- 4318. SOCIAL CHANGE (3-0)** 3 hours credit — Classical and contemporary theories of social change. The processes of urbanization, industrialization, and disorganization in modern societies. Ways of interpreting, monitoring, and inducing change within societies. Prerequisite: SOCI 1311 or permission of the instructor.
- 4319. SOCIOLOGY OF LAW (3-0)** 3 hours credit — Law as a social product. The interaction between the legal system and the larger social order of which it is part. Discrepancies between the ideal and actual operation of the law. The creation of law; the relationship between law and justice; the functioning of enforcement related agencies such as police forces, courts and the legal profession; law as an instrument for social change; the relationship between politics and law; and the operation of law with respect to minority groups. Prerequisite: SOCI 1311 or permission of the instructor.
- 4320. MEDICAL SOCIOLOGY (3-0)** 3 hours credit — The identification, causes, and cure of disease in different societies and social groups. Mortality (e.g., death and bereavement) as it relates to person-environment relations and morbidity (e.g., mental health) as it relates to social class membership. Medicine as an occupation (e.g., medical education), the hospital as a bureaucratic organization, and community health care delivery systems. The social interaction between healer and patient and illness as a social problem.
- 4331. PERSONALITY AND SOCIAL STRUCTURE (3-0)** 3 hours credit — Advanced sociology of individual behavior. National character, the impact of social status on personality, the role of the individual in social change. Adult socialization, images of human nature, the comparative influence of agents of socialization, organizational regimentation, sex roles, resocialization in correctional settings, the impact of college on student attitudes, and vocational socialization. Prerequisite: SOCI 1311 or 3317 or permission of the instructor.
- 4333. CLASS, STATUS, AND POWER (3-0)** 3 hours credit — The course content will consider types of stratification, compensation strata system, mobility, consequences of stratification, and problems of methodology. May be repeated for credit when the topics vary. Prerequisite: SOCI 1311 or 1312, 4312, or permission of the instructor.
- 4335. SOCIOLOGY OF ART (3-0)** 3 hours credit — The relationship between social structure, culture, and various forms of artistic expression: movies, plays, literature, music, and graphic arts. Problems of social change and social control. May be repeated for credit when the topic varies. Prerequisite: SOCI 1311 or 1312, or permission of the instructor.
- 4361. CITIES AND URBAN REGIONS (3-0)** 3 hours credit — Selected areas of urban living, processes, ecological patterns, and problems. The course content will vary in time and place and may be repeated for credit as the topic is changed. Prerequisite: SOCI 1311 or 1312, 3353, or permission of the instructor. This course was formerly SOCI 4330; credit cannot be granted for both 4330 and 4361.
- 4362. RESEARCH PRACTICUM (2-2)** 3 hours credit — For students expecting careers in research. Purpose: to provide practical experience in methods and in analysis learned in formal courses. Students will help decide on and participate in on-going research. Such skills as instrument design, coding, and data analysis may be acquired. Prerequisite: 2341, 3352, or permission of the instructor.
- 4394. HONORS THESIS/SENIOR PROJECT (3-0)** 3 hours credit — Applies only to participants in the Liberal Arts Honors Program, and fulfills the requirement that, during the participant's senior year, the student must complete a thesis or a project of equivalent difficulty under the direction of a faculty member in the major department.

**SOCIAL WORK (SOWK)**

- 2311. INTRODUCTION TO SOCIAL WORK** (3-0) 3 hours credit — An overview of the social work profession, its fields of practice, methods of social intervention, its historical content, and its relationship to the social welfare system. Required for students who wish to major in social work. Credit cannot be granted for both SOWK 2301 and 2311.
- 2313. BEGINNING SKILLS AND SOCIAL VALUES** (3-0) 3 hours credit — Critical evaluation of the value base of the social work profession and basic practice concepts in a framework for understanding a variety of intervention models. Requires a 50-hour volunteer placement in a social welfare agency. Prerequisite: SOWK 2311 or concurrent enrollment. Credit cannot be granted for both SOWK 2323 and 2313.
- 3306. CHILD WELFARE SERVICE** (3-0) 3 hours credit — Basic principles of child welfare. Focus is on developing a knowledge and understanding of child welfare and supporting services. Elective only.
- 3311. SOCIAL FUNCTIONING AND HUMAN DEVELOPMENT I** (3-0) 3 hours credit — A life-cycle overview emphasizing social adaptation to individual development in cognitive, affective, behavioral, and moral judgement areas. Emphasis on evaluation of functional vs. dysfunctional adjustment in social work practice.
- 3312. SOCIAL FUNCTIONING AND HUMAN DEVELOPMENT II** (3-0) 3 hours credit — The impact of external factors on human development, including ethnicity, regionalism, status systems, community values, and political structure. The role of individual choice and applicability of theory to practice emphasized. Prerequisite: SOWK 3305 or 3311 or permission of instructor.
- 3321. SOCIAL WORK PRACTICE I: INDIVIDUALS AND SMALL GROUPS** (3-0) 3 hours credit — Theories of social work practice. The utilization of individual and small group methodologies in diagnosis and treatment in diverse settings. Prerequisites: SOWK 2311, 2313, or permission of the instructor. Credit cannot be granted for both SOWK 3302 (No longer offered) and 3321.
- 3322. SOCIAL WORK PRACTICE II: COMMUNITY ORGANIZATION AND ADMINISTRATION** (3-0) 3 hours credit — The theory and practice of social change at the community level, including a sociological analysis of bureaucracies as collectivities of power, and of the community as a social phenomenon. Three models of community organization — community development, social action, and social planning — will be emphasized including methods of resource delivery and redistribution. Prerequisites: SOWK 2311, 2313, or permission of instructor. Credit cannot be granted for both SOWK 3304 (No longer offered) and 3322.
- 3323. PARENTAL AND CHILD HEALTH** (3-0) 3 hours credit — Human development from conception through early adulthood. The physical, social, and psychological changes experienced by mothers and fathers in meeting the needs of the developing child. Prerequisite: SOCI 1311 or permission of the instructor.
- 3325. SOCIAL WELFARE POLICY AND SERVICES** (3-0) 3 hours credit — An analytic approach to enable the student to critically examine policy choices with respect to beneficiaries of service, benefits provided, delivery strategies and finances. Selected social welfare policies, programs, and proposals examined from this perspective. The significance of social welfare policy for the social worker in direct practice. Formerly SOWK 4304; credit will be given only once.
- 4191, 4291, 4391. CONFERENCE COURSE** Variable credit from 1 to 3 semester hours (as arranged). Topics assigned on an individual basis covering personal research or study in the designated areas. Prerequisite: permission of instructor.
- 4350. SELECTED TOPICS IN SOCIAL WORK** (3-0) 3 hours credit — Relevant social work topics generated and explored in depth according to student and professional needs. The topic will be determined prior to registration. May be repeated for credit whenever content varies.
- 4383. ADVANCED SKILLS IN SOCIAL WORK** (3-0) 3 hours credit — Presents to the senior social work student an opportunity to develop additional professional skills. Various selected areas of practice skills relevant to student interest (intensive counseling, proposal writing, etc.) Will require an intensive examination of the techniques involved and assumes the student has acquired an adequate knowledge base in social work and/or related fields to understand the basic concepts from which the subject material of this course departs. Prerequisite: SOWK 4580 or permission of the instructor. Open to non-social work students with permission of the instructor.
- 4580. SOCIAL WORK FIELD INSTRUCTION I** (2-16) 5 hours credit — Supervised social work experience in a local social service agency. Integration of generalist practice concepts into professional practice experiences. The field placement requires two days per week in the agency plus a class seminar once a week. Students should consult the Social Work Field Handbook for information regarding enrollment in Field Instruction. Formerly 4380 and 4480; credit will be given only once. Open to social work students only. Prerequisite: SOWK 3302.
- 4581. SOCIAL WORK FIELD INSTRUCTION II** (2-16) 5 hours credit — Supervised social work experience in a local social service agency. Integration of generalist practice concepts into professional practice experiences and student determination of goals and objectives related to field experiences. The field placement requires two days per week in the agency plus a class seminar once a week. Students should consult the Social Work Field Handbook for information regarding enrollment in Field Instruction. Formerly 4381 and 4481; credit will be given only once. Open to social work students only. Prerequisite: SOCI 4580.

## **ANTHROPOLOGY**

### **ANTHROPOLOGY (ANTH)**

**1306. INTRODUCTION TO ANTHROPOLOGY** (3-0) 3 hours credit — The major fields of anthropology: ethnology, archaeology, physical anthropology, and linguistics. Replaces SOCI 2306. Credit cannot be granted for both.

**3307. PHYSICAL ANTHROPOLOGY** (3-0) 3 hours credit — Human evolution and human diversity. The fossil record of human evolution, biological adaptation to climate, genetic factors in evolution, and concepts of race.

**3322. CULTURAL ANTHROPOLOGY** (3-0) 3 hours credit — Man and his work, the development of culture technology, and social institutions from primitive times to the present. Prerequisite: ANTH 1306 or permission of the instructor.

**3330. CULTURE CHANGE** (3-0) 3 hours credit — Cultural change, internally generated, or resulting from culture contact. The processes of innovation, integration, diffusion, and acculturation. Prerequisite: SOCI 1311, or permission of the instructor.

**3331. CULTURE AND PERSONALITY** (3-0) 3 hours credit — The interplay of culture and personality in various Western and non-Western societies. The relationship of specific practices to the development of personality and the psychological effects of colonization, modernization, and economic development on traditional societies.



- 3332. THE PEOPLES OF THE WORLD (3-0)** 3 hours credit — The range and diversity of man, culture, and societies throughout the world. The similarities and differences among societies and the various theories which account for them.
- 3333. THE AMERICAN INDIAN (3-0)** 3 hours credit — A survey of the American Indian (North or South) cultures. Identification and development of cultural types both before and after the coming of the white man. May be repeated for credit when the topic varies.
- 3336. ANTHROPOLOGY OF RELIGION (3-0)** 3 hours of credit — A cross-cultural study of magic and religion. Theories of the origin and function of magic and religion in pre-industrial societies.
- 3339. PRINCIPLES OF ARCHEOLOGY (3-0)** 3 hours credit — An introduction to the methods and theories of prehistoric archeology. The techniques and approaches employed in recovering, dating, and interpreting prehistoric cultural materials.
- 3343. ECOLOGICAL AND CULTURAL GEOGRAPHY (3-0)** 3 hours credit — A survey of the world's geographical regions. Emphasis on the ecological adaptations which populations of the world, nomadic or sedentary, have made to the circumstances of their geographical, topographical, economic, and climatic environments.
- 3346. CULTURES OF THE AMERICAN SOUTHWEST (3-0)** 3 hours credit — The multi-cultural heritage of the American Southwest. Designed to increase the student's understanding of the contemporary cultures and the backgrounds of ethnic groups living within this region. Emphasis is on social structure. Among the groups considered are Indians, Mexican-Americans, Black Americans, and certain Texas minority groups of European ancestry.
- 3357. URBAN ANTHROPOLOGY (2-2)** 3 hours credit — Changing use of urban forms and structures and changes of urban artifacts through time. Prerequisite: ANTH 1306 or permission of the instructor.
- 4191, 4291, 4391. CONFERENCE COURSE** (Variable credit from 1 to 3 semester hours as arranged) — Topics assigned on an individual basis covering personal research or study in the designated area. Prerequisite: permission of the instructor.
- 4322. AREA STUDY IN ANTHROPOLOGY (3-0)** 3 hours credit — The people and cultures of a specific geographical region selected by the instructor. Typical regions are Southeast Asia, Africa, North America, Meso-America, and Oceania. May be repeated for credit whenever content varies. Prerequisite: ANTH 1306 or permission of instructor.
- 4323. FOLK AND PEASANT SOCIETIES (3-0)** 3 hours credit — The development and patterning of folk and peasant societies in various parts of the world. Archeological and historical records as well as contemporary ethnographic studies. May be repeated for credit whenever the content varies.
- 4326. CULTURES OF THE MIDDLE EAST (3-0)** 3 hours credit — A general survey course of the Middle East, with emphasis on the Arabic speaking areas. The course will dwell only briefly on the border areas of Afghanistan, Pakistan, Turkey, and the North African Maghreb, and concentrate on the core countries of Southwest Asia and Egypt. Emphasis will be put on the rapid socio-cultural change now underway in the wake of industrialization. Prerequisite: ANTH 1306 or permission of the instructor.
- 4327. CULTURES OF LATIN AMERICA (3-0)** 3 hours credit — Various cultures of Latin America, including indigenous populations, peasants, and urban centers. The history, cultures, and acculturation of representative groups, and the contemporary life of the peoples and the cultures of the area. Prerequisite: ANTH 1306 or permission of the instructor.
- 4328. CULTURES OF AFRICA (3-0)** 3 hours credit — A comparative study of several African communities, in the Sahara desert and south of the Sahara, their histories, their western contacts, and their different relationships and adaptations to their ecological environments. Emphasis will be put on developing levels of cultural complexity. Prerequisite: ANTH 1306 or permission of the instructor.
- 4391. CONFERENCE COURSE (3-0)** 3 hours credit — A research project in a specialized area, under supervision. May be repeated for credit.





# The School of Nursing

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The undergraduate program of the School of Nursing of The University of Texas at Arlington is fully accredited by the Board of Nurse Examiners for the State of Texas and the National League for Nursing.

## PHILOSOPHY

The School of Nursing, an integral component of The University of Texas at Arlington, seeks to assure health care of the highest quality for the people of Texas. Through its baccalaureate, graduate, and continuing education programs, the School of Nursing is committed to the preparation of individuals who will assume the professional nursing role and collaborate with other professionals in the delivery of health care. The faculty believes in the promotion and support of excellence in professional nursing through teaching, scholarly endeavors, research, and community service.

The faculty subscribes to a humanistic philosophy in which the person is viewed holistically. A person has unique and complex needs which are communicated through physiologic, self concept, role function and interdependent modes of behavior. Each individual has a unique environmental, psychosocial-cultural, and philosophical base and has inherent dignity, worth, and responsibility to society.

Every individual has the right to health care, provided through interdisciplinary collaboration. Nursing, as a part of the health care delivery system, is a profession evolving its practice in response to the needs of individuals, families, and communities and assumes responsibility to society for its delegated functions. These needs provide direction for the current and emerging roles of professional nursing practice.

The professional nurse functions in diversified practice settings and is accountable for helping persons achieve their maximum potential for daily living. Professional nursing practice, guided by concern for quality of life, evolves from the merging of nursing process and roles.

For those individuals engaged in nursing education, learning experiences are planned to achieve sequence, continuity, and synthesis of knowledge and skills as defined by the educational objectives. The teaching and learning processes involve the teacher and student in setting goals, selecting learning experiences, evaluating student progress and appraising instructional methods. Faculty and students share the responsibility for creating an educational climate which fosters intellectual inquiry, critical thinking, and creativity; facilitates the development of each individual's potential; and reflects democratic values and ethical influences. Learning is a continuous life long process that is the responsibility of each individual.

Undergraduate education in nursing, based upon studies in the arts, sciences, and humanities, provides a foundation for continuing personal, professional, and educational development. The baccalaureate program is designed to prepare a competent, self-directed, general nurse practitioner who can assume increasing responsibility in the delivery of nursing care for individuals, families, and communities in a variety of settings.

Graduate nursing education articulates with a foundation of undergraduate nursing education and provides an opportunity for professional nurses to continue developing practice abilities that are congruent with an expanding theoretical knowledge and authority base. The graduate program in nursing is designed to assist professional nurses to prepare for specialized clinical and functional roles that demand increased accountability and leadership. The masters program facilitates the use of the research process through the course of study and prepares the graduate to be a critical, self-directed practitioner who collaborates with consumers and other health care providers.

Continuing education in nursing is based upon the premise that maintaining competency in nursing practice is primarily the responsibility of each individual practitioner. The faculty believes that the School of Nursing should be sensitive to influences which are inherent in a changing society and should respond to the educational needs of the practitioner of nursing in the North Texas area.

## UNDERGRADUATE OBJECTIVES

The purpose of this program is to prepare graduates to practice nursing within a framework of legal, ethical, and professional standards; to exhibit an awareness of present and emerging roles of the professional nurse with regard to past trends, current practice and future directions; to demonstrate a sense of responsibility and concern for contemporary social and health issues; to accept responsibility for continued personal and professional growth; to be cognizant of the holistic nature of the person and to be a provider of individualized nursing care.

## **NURSING**

The graduate is expected to:

1. Integrate professional values and standards into the practice of nursing.
2. Assist persons to achieve their maximum potential for daily living through nursing practice.
3. Consolidate nursing roles and nursing process to meet the needs of the recipient of nursing.
4. Integrate nursing knowledge and thought processes in the formation of the nursing process.
5. Synthesize knowledge from the empirical, ethical, creative-esthetic, and personal realms in the practice of nursing.
6. Integrate selected thought processes (dialectic, logistic, operational, and problematic) in the practice of nursing.
7. Facilitate interdisciplinary services within the health care system.
8. Evaluate emerging trends in health care delivery and their implications for nursing practice.
9. Assume responsibility for personal and professional development.

### **ADMISSION**

**Pre-Nursing** — Students may be admitted or may transfer into the pre-nursing program of the School of Nursing upon meeting the admission or transfer requirements established by the University and the School of Nursing. (See Undergraduate Admission and College Transfers.)

**Professional Nursing** — Students desiring admission to the sequence of nursing courses leading to the degree of Bachelor of Science in Nursing must have completed the required 60 hours of credit with an overall grade point average of 2.0, and, in addition, a grade point average of 2.0 for all prerequisite lower division courses (excluding electives). A health history and physical examination (reported on a form supplied by the School of Nursing) must be completed within the three months prior to enrollment. All credentials should be sent directly to the Office of Admissions of The University of Texas at Arlington.

Enrollment in the professional nursing program is limited by the availability of clinical facilities. In the event that the number of applicants meeting the minimum requirements exceeds the enrollment limitation, the selection of the persons to be admitted will be based on an evaluation of the applicant's previous academic record.

**Professional Liability Insurance** — All nursing students enrolling in the nursing courses will be required to show evidence of professional liability insurance coverage for a minimum of \$200,000 limit each claim and \$600,000 limit aggregate.

### **TRANSFER**

Students desiring transfer credit for nursing courses must submit requested information about the courses and may be asked to take selected written examinations for acceptance of credits and placement in the nursing program. Only upper division nursing courses completed within the past five years with a grade of C or better will be considered for transfer credit. Further information about the transfer procedure may be obtained from the Office of the Dean, School of Nursing. Processing of the transfer procedure will not be initiated until the student has met the requirements for admission to the professional nursing program. (See Admission.)

### **INDIVIDUALIZED PLAN FOR EVALUATION**

The Individualized Plan for Evaluation has been developed for students who are registered nurses wishing to obtain a baccalaureate degree in nursing. This alternative uses planned classroom activities, independent learning, and individualized clinical experiences to achieve the undergraduate program objectives. Admission requirements for this alternative are the same as those for the generic undergraduate program.

### **CREDIT BY EXAMINATION**

In keeping with the School of Nursing's stated philosophy of learning, the faculty recognizes there are many potential avenues for acquisition of the knowledge, attitudes, and skills which are deemed appropriate for a baccalaureate nursing practitioner. Furthermore, the faculty believes that student experiences in formal education endeavors should build on the student's present level of achievement in an effort to maximize enhancement of the "actualization of individual potential." Therefore, the faculty subscribes to the principle of validation of the candidate's competencies and the awarding of credit based upon satisfactory achievement on the theory component and in those courses offering a clinical experience, a clinical component of the exam. The candidate is thus allowed to

matriculate into the curricular pattern at a level appropriate for his/her demonstrated level of achievement.

**Eligibility for obtaining credit by examination:**

- 1) All candidates must have completed the required 60 lower-division hours.
- 2) Persons eligible for taking the advanced standing examinations include: a) Registered nurses licensed in any state in the United States; b) Graduate nurses who are eligible but have not taken the state registered nurse licensing examinations; c) Graduate nurses who are awaiting the results after taking the state registered nurse licensing examinations.
- 3) Graduate nurses who have failed the state registered nurse licensing examinations are not eligible to take the advanced standing examinations until licensing is accomplished.
- 4) A candidate may not take the advanced standing examination for any course audited within the past five years.

**Policies for obtaining credit by examination:**

- 1) The candidate should consult the Dean of the School of Nursing regarding applications, policies, and scheduling.
- 2) A student may not take an examination for credit in a course which he/she has completed with either a passing or failing grade.
- 3) A candidate for "credit by examination" will have access to all materials in the campus learning resource centers, but will not receive tutoring by the School of Nursing faculty in preparation for the examination.
- 4) Only after the student is registered in the degree program will courses for which credit by examination is earned be posted to the permanent record.
- 5) A candidate may not retake any examination on any level.

**Procedures for obtaining credit by examination.**

- 1) The application form and official transcripts must be on file in the office of the Administrative Assistant for Student Affairs to be eligible to take the examinations. More detailed information can be obtained from the School of Nursing.
- 2) Any registered nurse who has satisfactorily completed the required 60 semester hours of lower division work may earn 47 semester hours of the required 66 semester hours of upper division work by successfully passing Advanced Placement Examinations.
- 3) The student must take the following 13 semester hours (four courses) in residence:
  - Nursing 3340 Theories and Concepts Relevant to Nursing Practice (3 credit hours)
  - Nursing 3160 Community Health I (1 credit hour)
  - Nursing 4362 Community Health II (3 credit hours)
  - Nursing 4671 Nursing Management (6 credit hours)
- 4) In addition, the student must take six semester hours of approved electives on a junior or senior level.
- 5) The student must complete a total of 30 hours of credit in residence at UTA or a UT component.
- 6) The theory and/or clinical components of the advanced placement exams will be given once a semester. The Associate Dean of Nursing will be responsible for scheduling the theory component of the exams, whereas a designated course instructor will be responsible for scheduling the clinical component.

## NURSING

### REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN NURSING

The nursing program consists of two academic years (or four semesters) of lower-division courses taken in an approved college or university followed by two academic years (or four semesters) of upper-division nursing courses which are taken in The University of Texas at Arlington School of Nursing. Upon successful completion of the program, the student is awarded the Bachelor of Science Degree in Nursing and is eligible to take the National Council Licensure Examination for licensure as a registered nurse.

#### LOWER DIVISION COURSES

The following 60 hours must be completed prior to enrollment for upper-division courses in nursing:

<b>Natural Sciences</b>	<b>Hours</b>
Anatomy and Physiology	3 <sup>1,4</sup>
Microbiology or Bacteriology	3
Chemistry	3 <sup>1</sup>
Electives	6
	—
	15 <sup>2</sup>
<b>Behavioral Sciences</b>	
Psychology	3
Sociology	3
Growth and Development	3
	—
	9
<b>History and Political Science</b>	12 <sup>3</sup>
<b>Other</b>	
Mathematics	3
Statistics (Math)	3
English	12
Nutrition	3
	—
	21
<b>Free Electives</b>	3 <sup>5</sup>
<b>TOTAL LOWER DIVISION</b>	60 plus physical education or military science or marching band as required.

<sup>1</sup>If part of a two-semester sequence, both courses are required.

<sup>2</sup>No fewer than six hours must be in courses which contain laboratory experience.

<sup>3</sup>House Bill 935, passed by the Sixtieth Legislature, provides that no person may receive an undergraduate degree unless he has taken and passed six semester hours in American political science and six semester hours in United States history. No more than three semester hours of credit by advanced standing examination in political science and three in history may be used to satisfy this requirement.

<sup>4</sup>Credit will not be granted for courses taken more than five years ago.

<sup>5</sup>Only university-parallel courses taken in an accredited college or university may be accepted as free electives. Neither nursing nor required physical education courses may be accepted as free electives.

The program outlined below will satisfy the lower division requirements toward a baccalaureate degree program at The University of Texas at Arlington.

#### **Suggested Course Sequence:**

##### FRESHMAN YEAR

**First Semester:** ENGL 1301; BIOL 1447; HIST 1311; CHEM 1361; PSYC 1315; Physical Education — Total Credit 17 hours.

**Second Semester:** ENGL 1302; CHEM 1362; HIST 1312; BIOL 1448; MATH 1302; Physical Education — Total Credit 17 hours.

**SOPHOMORE YEAR**

**First Semester:** English, 3 hours; POLS 2311; BIOL 2455; PSYC 3305; MATH 2311; Physical Education — Total Credit 17 hours.

**Second Semester:** English, 3 hours; POLS 2312; BIOL 2450; SOCI 1311; BIOL 1301; Physical Education — Total Credit 17 hours.

The nursing major begins in the junior year after completion of the 60 hours of basic liberal arts courses providing a foundation for understanding the holistic person's response to the health processes.

**UPPER DIVISION MAJOR**

**Junior Year**

**Semester I:** NURS 3431, 3264, 3120, 3340, 3632 — Total Credit 16 hours.

**\*\*Semester II:** NURS 3561, 3581, 3160, 3265, 3366 — Total Credit 16 hours.

**Senior Year**

**\*\*Semester I:** NURS 4541, 4531, 4362, 4221 — Total Credit 15 hours.

**\*\*Semester II:** NURS 4581, 4671, 4223 — Total Credit 13 hours.

**Total Required Nursing Hours:**

**60 Credit Hours**

**Upper Division Electives:**

**6 Credit Hours**

**Total for Degree:**

**126 Credit Hours\***

\* plus physical education or military science or marching band as required

\*\*Satisfactory completion (C) of prerequisite courses is required prior to enrolling in courses in subsequent semesters.

**NURSING (NURS)**

*Dean: Professor Pickard*

*Professor Field*

*Associate Professors Burns, Hughes, Lane, Marks, Reed, Thompson, Wyers*

*Adjunct Associate Professor Peschel*

*Assistant Professors Conrad, Courtney, Grove, Harnest, Hawley, Hegstad, Hill, Linebarger, Okimi, St. Clair, Sterling, Tolbert, Wright*

*Adjunct Assistant Professors Hall, Henning, Murphy, Norman*

*Instructors Blue, Camin, Houk, N. Patrick, Pruitt, Taylor*

*Specialists Atwell, Barbato, Barnes, Cameron, Clark, Cooper, Copel, Droske, Fowler, Gebhardt, Gralton, Hall, Hamilton, Johnson, Martin, Miles, Moore, Parker, Paterniti, Patterson, Penn, Pinkerton, Sawyer, Singer, Turpin, Vernon, Wormser*

**3120. PROFESSIONALISM AND RESEARCH I** (1-0) 1 hour credit — An introduction to the UTASN philosophy and to the concepts of professionalism, research, and nursing knowledge.

**3160. COMMUNITY HEALTH I** (1-0) 1 hour credit — Exploration of concepts relevant to community health nursing. Emphasis on the impact of health on the community, primary-secondary-tertiary prevention, community politics, and community assessment. Prerequisite: NURS 3431.

**3264. PHARMACOLOGY I** (2-0) 2 hours credit — Includes mastery in calculation accuracy for the safe administration of medications, an introduction to the concept of pharmacology and major drug classifications, and the role of the nurse.

**3265. PHARMACOLOGY II** (2-0) 2 hours credit — In-depth study of major drug classifications. Examination of undesired effects and problems of drug abuse, drug misuse, drug interactions, and drug toxicity and nursing implications for each. Prerequisite: NURS 3264.

**3340. THEORIES AND CONCEPTS RELEVANT TO NURSING PRACTICE** (3-0) 3 hours credit — Study of UTASN conceptual framework with emphasis on the holistic perspective and thought processes and on the concepts person, health, environment, and nursing.

**3366. PATHOLOGIC PROCESSES IN THE HOLISTIC PERSON** (3-0) 3 hours credit — Focus is on providing the nurse with a knowledge base of physiologic and psycho-social disorders with emphasis on dynamic aspects of pathologic states and alterations in structure, function, and regulation manifested with these states.

**3431. PROMOTION OF HEALTH THROUGH THE LIFE CYCLE** (2-6) 4 hours credit — Focuses on holistic person, health, and health care delivery with emphasis on the nurse's role in promoting client health throughout the life cycle. Prerequisite or concurrent: NURS 3340, 3632, 3264.

**3561. NURSING OF INDIVIDUALS AND FAMILIES WITH MEDICAL-SURGICAL PROBLEMS** (3-6) 5 hours credit — Application of the nursing process in providing nursing care to individuals and families with medical-surgical problems. Emphasis is on the promotion of maximum potential for daily living of clients as they respond to their health processes. Prerequisites: NURS 3431, 3632, 3340, 3264. Prerequisite or concurrent: NURS 3366 and 3265.

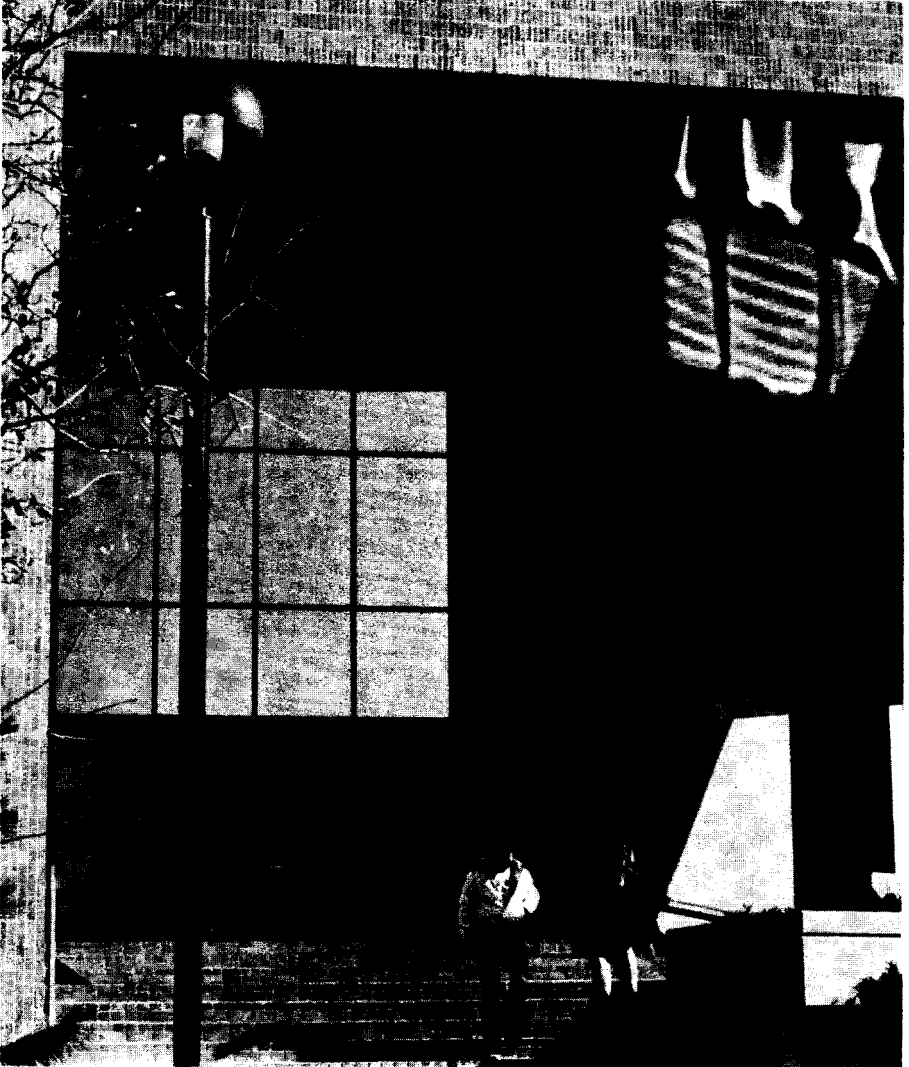
## **NURSING**

**3581. NURSING OF INDIVIDUALS, FAMILIES, AND GROUPS WITH PSYCHO-SOCIAL PROBLEMS (3-6)** 5 hours credit — Application of the nursing process in the care of individuals, families, and groups with psychosocial problems. Emphasis is on promoting the maximum potential for daily living of clients as they respond to their health processes. Prerequisites: NURS 3431, 3632, 3340, 3264. Prerequisite or concurrent: NURS 3366 and 3265.

**3632. INTRODUCTION TO THE PROCESS AND PRACTICE OF NURSING (4-6)** 6 hours credit — Introduction to the nursing process and to nursing behaviors as they are operationalized in the practice of nursing. Prerequisite or concurrent: NURS 3264 and 3340.

**4221. PROFESSIONALISM AND RESEARCH II (2-0)** 2 hours credit — Focus is on legal, moral, and ethical issues affecting nursing and on an in-depth study of the research process. Prerequisite: NURS 3120.

**4223. PROFESSIONALISM AND RESEARCH III (2-0)** 2 hours credit — Focus is on current health trends, issues, research, and legislation influencing professional nursing and projected future of nursing in education, practice, and research. Prerequisite: NURS 4221.



**4362. COMMUNITY HEALTH II (1-6)** 3 hours credit — Exploration and application of concepts relevant to community health nursing. Includes the concepts of epidemiology, health planning, consumerism, legislation, finance, and world health. Prerequisite: NURS 3160. Prerequisite or concurrent: NURS 3561 and 3581.

**4531. NURSING OF CHILDREN AND ADOLESCENTS (3-6)** 5 hours credit — Application of the nursing process in assisting children, adolescents, and their families to achieve maximum potential for daily living. Emphasis is on the concepts of health processes, environment, holistic perspective, the process of living and dying, and alterations in the four adaptive modes. Prerequisites: NURS 3561, 3581, 3366, and 3265.

**4541. NURSING DURING THE CHILDBEARING EXPERIENCE (3-6)** 5 hours credit — Application of the nursing process in assisting families to maximize their potential for daily living throughout pregnancy and the childbearing experience. Prerequisites: NURS 3561, 3581, 3366 and 3265.

**4581. ADVANCED NURSING CONCEPTS (3-6)** 5 hours credit — Focus is on promoting quality of life for individuals, families, and groups with acute and chronic physical and/or psycho-social health problems. Emphasis on analysis of complex interrelationships in pathophysiology and psychopathology and development of therapeutic nurse-client relationships to promote quality nursing care. Prerequisite: NURS 4541, 4531, and 4362.

**4671. NURSING MANAGEMENT (2-12)** 6 hours credit — Focus on theories of change, decision-making, leadership and management and their application by the nurse-manager in institutional or community settings. Prerequisites: NURS 4541 and 4531.

**3647, 3347, 3247, 3147. SPECIALIZED TOPICS IN NURSING** (Variable credit from 1 to 6 semester hours as arranged) — Areas of special interest. May be repeated with varied topics. Prerequisites: junior standing and NURS 3431, 3264, 3120, 3340, 3632.

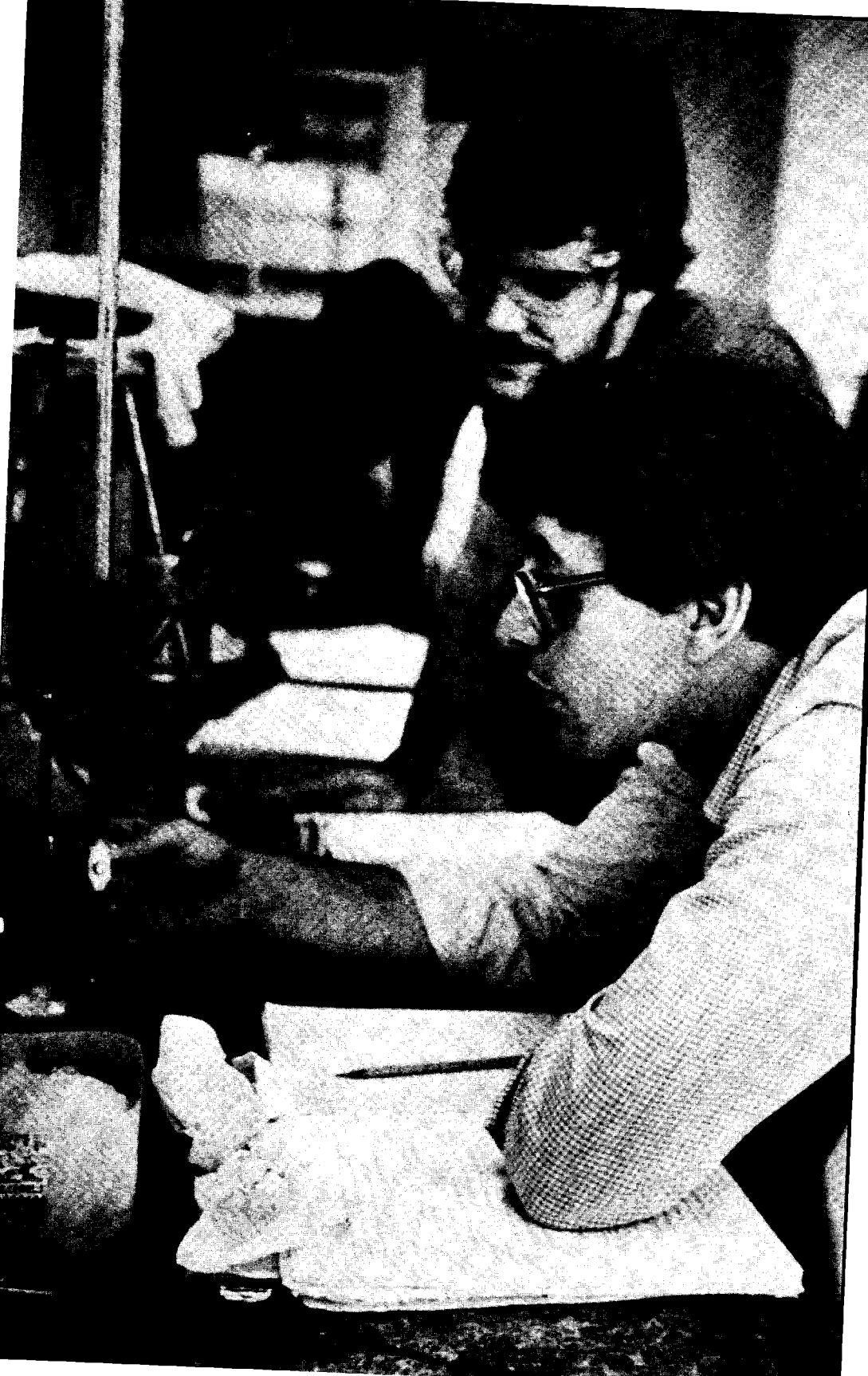
The following electives may or may not be taught every semester.

**3637, 3337, 3237, 3137. INDEPENDENT STUDY** (Variable credit from 1-6 semester hours as arranged) — Topic and mode of study are agreed upon by the student and instructor. May be repeated with various topics.

**3348. INTRODUCTION TO CLINICAL GROUP PROCESS (2-3)** 3 hours credit — Group dynamics as they relate to the process of socialization and the achievement of group goals. Seminars on theoretical concepts of group structure, group properties, and interactions in groups. Group participating sessions directed toward helping students achieve an increasing sensitivity to and acceptance of themselves and others in the human situation. Enrollment usually limited to 10-12 students. Prerequisites: NURS 3366, 3581.

**3652. OPERATING ROOM - CONTINUOUS CARE EXPERIENCE (3-9)** 6 hours credit — Clinical experience with patients who require surgical intervention. Focus on the complete cycle of care: pre-operative teaching, an intraoperative segment, and postoperative care. Prerequisites: NURS 3366, 3561 and consent of instructor.

**3353, 3653. EMERGENCY NURSING (1-6 or 2-12)** (Variable credit from 3 to 6 hours depending on contact hours) — The application of the nursing process to the care of patients experiencing medical or surgical emergencies, or traumatic injuries. In-depth study of nursing problems related to selected emergency situations. Prerequisites: NURS 3160, 3265, 3366, 3561, 3581 or consent of instructor.





# The College of SCIENCE

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The College of Science consists of the Departments of Biology, Chemistry (which includes Biochemistry), Geology, Mathematics, Physics, and Psychology. A few general, interdisciplinary courses are labeled Science courses and are described at the end of these introductory sections. All other courses are described in the sections devoted to the departments offering them. BS degrees are possible in all of the science departments and BA degrees in most of them. The BA degrees are for students who prefer a broad liberal education with concentration in a science. The BS degrees are for those who want a thorough grounding in the fundamentals of a science which serves as excellent preparation for either graduate work or application of the science in technological industries, medical institutions, government laboratories, business, or commerce. Several of the science departments list degree options which illustrate a few of the specialities that can be developed. The number of individual degree plans that can be designed to fit career goals is large. Students are urged to consult departmental advisors for assistance in formulating career objectives and the corresponding educational plans.

The College of Science offers programs leading to graduate degrees in all departments. These degrees include Mathematical Sciences and Radiological Physics. Consult the graduate catalog for details of masters and doctoral programs.

## **UNDECIDED SCIENCE MAJOR**

Entering freshmen who plan eventually to major in one of the science degree programs but who have not decided on a particular major at the time of enrollment should declare an "Undecided Science Major" and may consult the Office of the Dean of Science for advice on specific courses before registration only if necessary. The student is urged to declare his/her major by the beginning of the sophomore year and consult an advisor in his/her major department before subsequent registrations.

## **OPPORTUNITIES IN SCIENCE**

The marvels of the twenty-first century will spring from science just as did those of the twentieth century. The crowning achievements of the past century are numerous. Miracle drugs, efficient fuels, arrays of synthetic materials, the transistor, the laser, nuclear power, solar energy, the computer, the electron microscope, and sophisticated techniques for locating mineral deposits are merely a few examples. Discoveries of similar magnitude will be made in the next century as scientists bring their talents to bear on modern society's pressing problems such as energy, environmental protection, and improved health care for mental and physical problems.

## **HEALTH PROFESSIONS COUNSELING AND ADVISING CENTER**

The center serves as headquarters for students entering the health professions and sponsors an active health career orientation and education program. Services include preadmission and admission counseling, health career advisement and assistance in making application (s) to the health science professional schools. The center assists students majoring in premedicine, predentistry, preveterinary medicine, prepharmacy and allied health sciences. Offices are in the Life Science Building, Room 114, office hours are 8 a.m. to 5 p.m. Monday through Friday.

A degree earned in any of the departments of the College of Science is excellent preparation for medical or dental school provided that courses required or advised by these professional schools are included in the degree plan. Premedical and pre dental students should take BIOL 1447, 1448, and two additional courses. (BIOL 2451 and 2452 are recommended.) CHEM 1301, 1302, 1284, 2181, 2321, 2182, and 2322 are recommended. These students should, also, take MATH 1325 and 1326 and PHYS 1441 and 1442. The advisor in the student's major department should be consulted for more information. In addition, the Department of Biology offers programs in preveterinary medicine and prepharmacy.

## **SCIENCE**

### **ALLIED HEALTH PROGRAMS**

The University of Texas at Arlington offers a number of programs in the allied health sciences in conjunction with the Schools of Allied Health Sciences of The University of Texas Health Science Centers located at Dallas, Galveston, Houston, and San Antonio. For advising on the portions of the programs taken at The University of Texas at Arlington and for information regarding allied health programs, contact the Health Professions Counseling and Advising Center. The center is in the Life Science Building, Room 114.

The programs offered are:

- Allied Health Education
- Gerontology
- Instructional Media Technology
- Medical Records Administration (Galveston)
- Medical Technology
- Nutrition and Dietetics
- Occupational Therapy (Galveston)
- Physical Therapy
- Physician's Assistant
- Rehabilitation Science

### **TEACHERS CERTIFICATION IN THE SCIENCES**

Programs leading to teacher certification at the elementary and secondary levels are available in the science departments. Included among these are secondary certification in Composite Science offered in the Departments of Chemistry, Geology, and Physics, in Earth Science offered in the Department of Geology, in Life-Earth Middle School offered in the Departments of Biology and Geology, and in Physical Science offered in the Departments of Chemistry and Physics. These programs are coordinated with the Center for Professional Teacher Education. For more information see the departmental entries about teacher certification and consult the Education section.

### **SCIENCE MAJOR/BUSINESS ADMINISTRATION MINOR**

Science majors planning to pursue a Master of Business Administration degree are advised to select a minor (18-24 semester hours) from the following courses: ACCT 2301, 2302, BUSA 2301, 2302, 3321, MANA 3319, MASI 3306, FINA 3313, MARK 3321, and ECON 2305, 2306. Completion of the above courses will allow the student, subject to normal graduate admission requirements, to reduce the foundation MBA program requirements. A student not completing all of the courses identified above will be required to enroll in the appropriate MBA foundation courses. All students minoring in business administration should consult with an undergraduate advisor in the College of Business Administration.

### **COOPERATIVE PROGRAMS**

Cooperative students alternate between full time study at the University and full time work periods or attend classes and engage in work related to their career goals simultaneously. The College of Science offers assistance in placing students in cooperative programs in industries, governmental agencies, and medical institutions in the Dallas-Fort Worth area and elsewhere. Cooperative students gain practical experience and a means for defraying a portion of the expenses of college education. Completion of the cooperative program entitles the student to have that fact entered on his/her transcript. Under this plan the minimum time in which the student can earn the bachelor's degree is four calendar years.

### **PASS-FAIL PROGRAM**

Students majoring in a science who have earned at least 60 semester hours credit with a grade-point average of 2.5 or better may take as many as 12 semester hours on a pass-fail basis in elective courses in the sciences or mathematics for credit toward their degrees. Permission for a maximum of two courses in a given semester may be obtained up to the Census Day. Forms for both science and non-science majors are available in the Office of the Dean of Science.

Students not majoring in a science are invited to take, on a pass-fail basis, with the approval of their major departments, any course offered in the College of Science for which they are qualified.

## TRANSFER STUDENTS

Students transferring from other institutions are invited to explore opportunities in the College of Science. Inquiries about equivalency of courses and other questions related to transferring are welcome in the Office of the Dean of Science.

Students who plan to attend junior college or another senior college before entering UTA can get help in planning their programs of courses and may avoid needless delay of graduation by consulting an advisor in the Office of the Dean of Science before matriculating.

## SCIENCE CONSTITUENT COUNCIL

The Science Constituent Council, the official student government for the College of Science, is an organization which serves both students and the College. It meets at least once a month, and one of its purposes is to involve a greater number of students in matters of interest to those taking courses in the College of Science. Members are majors in the departments of the College. At least half of the voting members are elected at the time of the student congress elections. Self-nomination is encouraged.

## SCIENCE LEARNING CENTER

The Science Learning Center is open to all students. It houses self-study materials in biology, chemistry, geology, mathematics, physics, and psychology and the Science Career Corner. Many of the learning modules can be checked out in Room 105 of the Life Science Building. Various learning aids are available — slides, film strips, and work books, all with audio tapes, video tapes, sound on pages, computer assisted instruction, and other kinds. Many professors have placed quizzes given in the past, homework solutions, and lecture notes in the Center. In addition, some courses in biology and mathematics are offered through the Science Learning Center.

The Science Career Corner, in Room 113 of the Life Science Building, contains information about interesting and challenging careers in science. Both audiovisual materials and career brochures are available. Books dealing with interviewing for jobs and writing resumes offer valuable assistance.

## SCIENCE AND MATHEMATICS FOR THE NON-SCIENCE MAJOR

The following is a list of some of the courses that are applicable to science and mathematics requirements. The student is advised to examine the requirements for his or her degree before making selections. The list is intended, also, to encourage interest in the sciences and mathematics beyond degree requirements. The courses named have no prerequisites, few prerequisites, or prerequisites consisting of introductory courses only. The figures in parenthesis indicate the number of hours of instruction per week in the fall and spring semesters. The first figure indicates the amount of time devoted to theory, and the second indicates the amount of time devoted to laboratory work.

- Science:** 3301 Evolution of Scientific Thought (3-0)
- Biology:** 1301 Nutrition (3-0)  
 1447 and 1448 General Biology (3-2)  
 1450 Native Plants (3-3)  
 2310 Principles of Health (3-0)  
 2311 Man and Environment (3-0)  
 2312 Heredity and Human Affairs (3-0)  
 2313 General Ecology (3-0)  
 2315 Plants and Man (3-0)  
 2317 Basic Concepts in Human Sexuality (3-0)  
 2345 General Botany (2-3)  
 2450 Microbiology (3-3)  
 3311 Medical Entomology (3-0)
- Chemistry:** 1101 Photography and Chemistry (1-0)  
 1102 Better Gardening through Chemistry (1-0)  
 1103 Our Energy Dilemma (1-0)  
 1104 Over-the-counter Drugs (1-0)  
 1105 Food Additives (1-0)  
 1106 Winemaking and Fermentation Science (1-0)  
 1181 Preparation and Analysis of Consumer Products (0-2)  
 1182 Laboratory Aspects of Photography (0-2)

## SCIENCE

- 1183 Laboratory Practices in Fermentation (0-2)
- 1221 Chemistry for the Consumer (2-0)
- 1222 Current Environment Crises (2-0)
- 1361 and 1362 Chemistry for the Health Sciences (2-3)
- 1461 and 1462 Introductory Forensic Chemistry (3-3)
- 3310 Air Pollution (3-0)
- 3311 Chemistry of the Environment — Air, Water, Soilds (3-0)
- 3463 Forensic Analysis (3-3)

### Geology:

- 1345 Principles of Physical Geology (2-3)
- 1346 Principles of Historical Geology (2-3)
- 1445 Physical Geology (3-3)
- 1446 Principles of Historical Geology (3-3)
- 3301 Introduction to Oceanography (3-0)
- 3302 Introduction to Geology of the United States (3-0)
- 3303 Volcanoes and Volcanic Eruption (3-0)
- 3304 Geologic Hazards (3-0)
- 3305 Geology of Texas (3-0)
- 3306 Geologic Time (3-0)
- 3307 Energy Resources (3-0)
- 3308 Geology of National Parks and Monuments (3-0)
- 3309 Landscape Evolution (3-0)

### Mathematics:

- 1306 and 1307 Survey of Mathematics (3-0)
- 1315 College Algebra for Economic and Business Analysis (3-0)
- 1316 Mathematics for Economic and Business Analysis (3-0)
- 1318 Mathematics for Social Sciences (3-0)
- 2311 Elementary Probability and Statistics (3-0)
- 3310 Statistical Analysis (3-0)

### Physics:

- 1288 Special Problems in General Physics (0-6)
- 1300 Introduction to Musical Acoustics (3-0)
- 1341 and 1342 Introductory Physics (2-2)
- 1345 and 1346 Introductory Astronomy (2-2)
- 2302 Twentieth Century Physics (3-0)
- 2303 Science, Scientists, and Society (3-0)
- 3116 Frontiers of Physics (1-0)

**The courses in psychology which are listed below are of general interest. Such courses contribute significantly to a well-balanced education even though they do not apply to any science requirement. Courses marked with an asterisk can be taken as biology.**

### Psychology:

- 1301 Reading and Study Skills (3-0)
- 1311 Introduction to Psychology as a Social Science (3-0)
- 1315 Introduction to Psychology (3-0)
- 2310 Behavior Management and Modification (3-0)
- 2313 Environmental Psychology (3-0)
- 2315 Social and Organizational Behavior (3-0)
- \*2317 Basic Concepts in Human Sexuality (3-0)
- 2319 Analysis of Parapsychology and Other Controversial Sciences (3-0)
- 2441 Psychological Statistics (3-2)
- 3300 Contemporary Psychology (3-0)
- 3301 Psychology of Human Relations (3-0)
- 3302 Psychology of Women (3-0)
- 3305 Developmental Psychology (3-0)
- 3307 Introduction to Clinical and Counseling Psychology (3-0)
- 3309 Abnormal Psychology (3-0)
- 3312 Drugs and Behavior (3-0)
- 3314 Psychology of Personality (3-0)
- \*3326 Animal Behavior (3-0)
- 3353 Psychology of Creativity and Creative Thinking (3-0)
- 3373 Psychology of Religion (3-0)

## SCIENCE (SCIE)

The Science courses listed below are so designated because they are interdisciplinary.

**1102, 1202, 1302. COOPERATIVE PRE-PROFESSIONAL EXPERIENCE I** (1, 2, or 3 hours credit) — First year students enrolled in the Cooperative Program are required to register in a course for one hour of credit (three credit hours maximum) for each 10 clock hours per week of pre-professional experience scheduled for the semester. The student is required to submit a written report of his work experience at the end of the semester to the faculty member designated coordinator of the college Cooperative Program. A maximum of three semester hours credit in Cooperative Pre-professional Experience courses may be used to satisfy the free elective requirement for graduation.

**2102, 2202, 2302. COOPERATIVE PRE-PROFESSIONAL EXPERIENCE II** (1, 2, or 3 hours credit) — Second year students enrolled in the Cooperative Program are required to register in a course for one hour of credit (three credit hours maximum) for each 10 clock hours per week of pre-professional experience scheduled for the semester. The student is required to submit a written report of his work experience at the end of the semester to the faculty member designated coordinator of the college Cooperative Program. A maximum of three semester hours credit in Cooperative Pre-professional Experience courses may be used to satisfy the free elective requirement for graduation.

**3102, 3202, 3302. COOPERATIVE PRE-PROFESSIONAL EXPERIENCE III** (1, 2, or 3 hours credit) — Third year students enrolled in the Cooperative Program are required to register in a course for one hour of credit (three hours maximum) for each 10 clock hours per week of pre-professional experience scheduled for the semester. The student is required to submit a written report of his work experience at the end of the semester to the faculty member designated coordinator of the college Cooperative Program. A maximum of three semester hours credit in Cooperative Pre-professional Experience courses may be used to satisfy the free elective requirement for graduation.

**4102, 4202, 4302. COOPERATIVE PRE-PROFESSIONAL EXPERIENCE IV** (1, 2, or 3 hours credit) — Fourth year students enrolled in the Cooperative Program are required to register in a course for one hour of credit (three credit hours maximum) for each 10 clock hours per week of pre-professional experience scheduled for the semester. The student is required to submit a written report of his work experience at the end of the semester to the faculty member designated coordinator of the college Cooperative Program. A maximum of three semester hours credit in Cooperative Pre-professional Experience courses may be used to satisfy the free elective requirement for graduation.

**3101. USE OF THE SCIENTIFIC LITERATURE** (1-0) 1 hour credit — The importance of the scientific literature in research and in general learning is stressed in this course. Instruction is given in searching the literature efficiently. Traditional, computer-assisted, and other methods are covered. Prerequisite: junior standing or permission of the instructor.

**3301. EVOLUTION OF SCIENTIFIC THOUGHT** (3-0) 3 hours credit — Science viewed as a way of thinking and problem solving with particular attention paid to the unity of the sciences and the important role of the interplay of theory and evidence. This course may be used to satisfy three hours in any science of the 12 required for the Bachelor of Arts degree and may be used as a free elective by majors in the College of Science. Prerequisite: six hours of science with laboratory or permission of the instructor.

**4101. INDIVIDUAL INSTRUCTION IN FACILITATING LEARNING** 1 hour credit — Students are individually trained while working with the Science Learning Center as facilitators to users of the Center. May be repeated once for credit. Will be graded pass-fail. Prerequisites: A 3.0 GPA in 16 hours of the science served by the student and prior approval of the instructor.

# The Department of BIOLOGY

The Department of Biology offers three programs of study leading to the bachelor's degree. They are the Bachelor of Science Degree in Biology with five options, the Bachelor of Science Degree in Microbiology, and the Bachelor of Science Degree in Medical Technology. The student, therefore, should select a program based on the field of biology in which he/she intends to work. The degree program and options are:

## BACHELOR OF SCIENCE DEGREE IN BIOLOGY

**OPTION 1. GENERAL BIOLOGY** — This program of study should be chosen by students who are not interested in concentration in any one area of biology but want a broad background in biology.

**OPTION 2. \*PRE-MEDICAL AND PRE-DENTAL** — This program provides the most suitable combination of courses to prepare students for entry into medical or dental school.

**OPTION 3. BOTANY** — This program should be chosen by students whose main interest is in the study of plants.

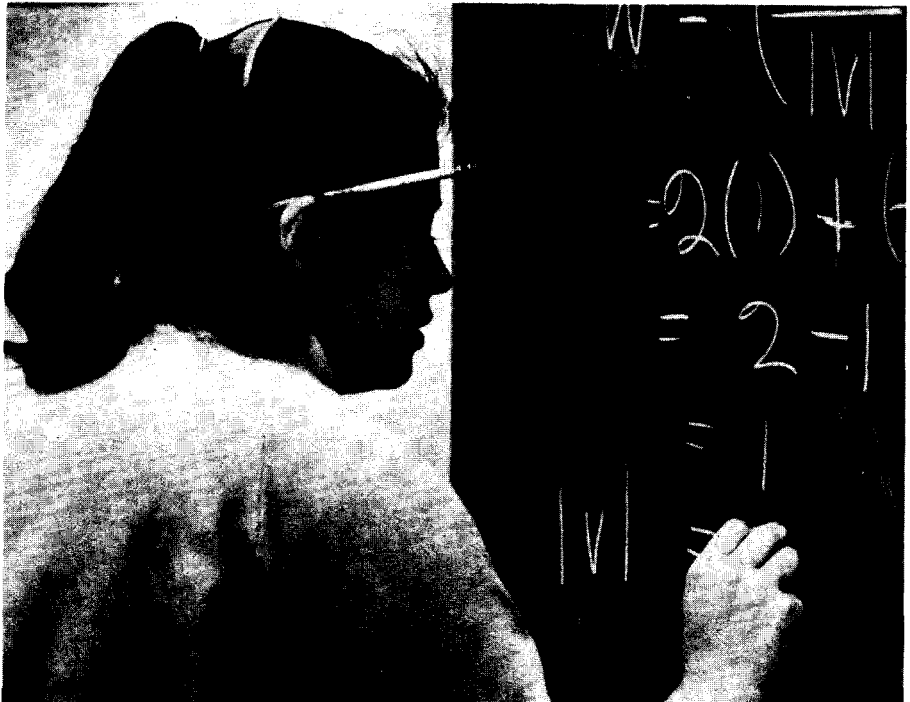
**OPTION 4.** — This program is intended for students interested in ecology, environmental biology and natural history.

**OPTION 5. PHYSIOLOGY** — This program is primarily for students interested in a study in which the functional organization of life forms is emphasized.

## BACHELOR OF SCIENCE DEGREE IN MICROBIOLOGY

## BACHELOR OF SCIENCE DEGREE IN MEDICAL TECHNOLOGY

\*All options and the degree program in microbiology will satisfy minimum pre-medical and pre-dental requirements.



**REQUIREMENTS FOR A BACHELOR OF SCIENCE  
DEGREE IN BIOLOGY  
(Option 1 — General Biology)**

<b>English:</b>	1301, 1302, and six hours of sophomore literature.
<b>Foreign Language:</b>	1441, 1442, 2313, or equivalent.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Mathematics:</b>	*1311 and 1312 or equivalent.
<b>Outside Electives:</b>	Nine hours outside engineering, mathematics, and the sciences. Courses in psychology may be used to satisfy this requirement.
<b>Electives:</b>	Sufficient to give the total number of hours required for a degree.
<b>Science Other Than Biology:</b>	CHEM 1301, 1302, 1284, 2181, 2321, 2182, and 2322 and PHYS 1441, 1442.
<b>Major:</b>	**39 hours including 1447, 1448, 2313, 2345, 2451, 2452 or 3455, 3442 or 3446, 3312 or 3353, 3315, 3443 and three advanced hours.
<b>Minor:</b>	18 hours in a single field, six of which must be advanced.
<b>Total Hours:</b>	130 hours of which at least 36 must be advanced, plus physical education or marching band or military science as required.

\*In cooperation with the **Biology Department**, the **Mathematics Department** offers a two-semester course (**Calculus with Analytic Geometry I and II — MATH 1311 and 1312**) for biology majors to satisfy their mathematics course requirements. In this alternative, subjects and problems relevant to the biological and biomedical sciences are emphasized. If the student is not qualified to take MATH 1311 when he/she enters, he/she must complete the prerequisites for the course. This may add three to six hours to the total required for the degree. No course prerequisite for MATH 1311 will be counted as credit toward graduation.

\*\*Students interested in and qualified for the advanced standing examination or the advanced placement examination in biology should refer to the section "College Credit By Examination" in the Admission section of this catalog.

**Suggested Course Sequence:**

**FRESHMAN YEAR**

**First Semester:** ENGL 1301; MATH 1311; CHEM 1301; BIOL 1447; HIST.1311; Physical Education or Marching Band or Military Science — Total Credit 17 hours.

**Second Semester:** ENGL 1302; MATH 1312; CHEM 1302; CHEM 1284; BIOL 1448; HIST 1312; Physical Education or Military Science — Total Credit 19 hours.

**SOPHOMORE YEAR**

**First Semester:** English (2000 literature), 3 hours; CHEM 2181, 2321; BIOL 2345; BIOL 2452 or 3455; POLS 2311; Physical Education or Marching Band or Military Science — Total Credit 18 or 19 hours.

**Second Semester:** English (2000 literature), 3 hours; CHEM 2182, 2322; BIOL 2451; BIOL 2313; POLS 2312; Physical Education or Military Science — Total Credit 18 or 19 hours.

**JUNIOR YEAR**

**First Semester:** BIOL 3443; PHYS 1441; Foreign Language 1441; Elective, 3 hours — Total Credit 15 hours.

**Second Semester:** BIOL 3315; BIOL 3312 or 3353; PHYS 1442; Foreign Language 1442; Elective, 3 hours — Total Credit 17 hours.

**SENIOR YEAR**

**First Semester:** BIOL 3442 or 3446; Foreign Language, 3 hours; Electives, 8 hours — Total Credit 15 hours.

**Second Semester:** Biology Electives (advanced), 3 hours; Electives, 12 hours — Total Credit 15 hours.

## BIOLOGY

### REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN BIOLOGY (Option 2 — Pre-Medical and Pre-Dental)

The program outlined below leads to the Bachelor of Science Degree in Biology and is designed to meet the minimum admission requirements of most medical or dental schools but does not assure the student's being accepted to a given medical or dental school. It is planned to prepare the student for the successful study of medicine or dentistry; however, it is not mandatory that a student choose this particular option to be admitted to a medical or dental school. He may choose any option so long as he meets the minimum requirements stated by the professional schools. Each student must assume the responsibility for knowing any special requirements of the medical or dental school which he plans to attend.

<b>English:</b>	1301, 1302, and six hours of additional English.
<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Mathematics:</b>	* 1311, 1312 or equivalent.
<b>Outside Electives:</b>	Nine hours outside engineering, mathematics, and the sciences. Courses in psychology may be used to satisfy this requirement.
<b>Electives:</b>	Sufficient to give the total number of hours required for a degree.
<b>Science Other Than Biology:</b>	PHYS 1441, 1442.
<b>Major:</b>	** 38 hours including 1447, 1448, 2345, 2451, 2452, 3315 and 3443, and 12 hours advanced biology electives.
<b>Minor:</b>	CHEM 1301, 1302, 1284, 2181, 2321, 2182, and 2322, and six hours chosen from 3301, 4311, 4312.
<b>Total Hours:</b>	130 hours, of which at least 36 must be advanced, plus physical education or marching band or military science as required.

\* In cooperation with the Biology Department, the Mathematics Department offers a two-semester course (Calculus with Analytic Geometry I and II — MATH 1311 and 1312) for biology majors to satisfy their mathematics course requirements. In this alternative, subjects and problems relevant to the biological and biomedical sciences are emphasized. If the student is not qualified to take MATH 1311 when he/she enters, he/she must complete the prerequisites for the course. This may add three to six hours to the total required for the degree. No course prerequisite for MATH 1311 will be counted as credit toward graduation.

\*\* Students interested in and qualified for the advanced standing examination or the advanced placement examination in biology should refer to the section "College Credit By Examination" in the Admission section of this catalog.

#### **Suggested Course Sequence:**

##### FRESHMAN YEAR

**First Semester:** BIOL 1447; CHEM 1301; ENGL 1301; MATH 1311; Physical Education or Marching Band or Military Science — Total Credit 14 hours.

**Second Semester:** BIOL 1448; CHEM 1302; CHEM 1284; ENGL 1302; MATH 1312; Physical Education or Military Science — Total Credit 16 hours.

##### SOPHOMORE YEAR

**First Semester:** BIOL 2452; BIOL 2345; CHEM 2181, 2321; Outside Elective, 3 hours; English, 3 hours; Physical Education or Marching Band or Military Science — Total Credit 18 or 19 hours.

**Second Semester:** BIOL 2451; CHEM 2182, 2322; English, 3 hours; Outside Elective, 3 hours; Physical Education or Military Science — Total Credit 15 or 16 hours.

##### JUNIOR YEAR

**First Semester:** BIOL 3315; CHEM 4311; POLS 2311; PHYS 1441; Foreign Language 1441 — Total Credit 17 hours.

**Second Semester:** BIOL 3443; CHEM 3301 or 4312; POLS 2312; PHYS 1442; Foreign Language 1442 — Total Credit 18 hours.



**SENIOR YEAR**

**First Semester:** Biology Elective (advanced), 6 hours; HIST 1311; Electives (advanced), 6 hours; Foreign Language, 3 hours — Total Credit 18 hours.

**Second Semester:** Biology Electives (advanced), 6 hours; HIST 1312; Electives (advanced), 6 hours; Outside Electives, 3 hours — Total Credit 18 hours.

**REQUIREMENTS FOR A BACHELOR OF SCIENCE  
DEGREE IN BIOLOGY  
(Option 3 — Botany)**

Requirements for English, foreign language, political science, history, mathematics and electives are the same as those listed for Option 1.

**Science Other Than Biology:** PHYS 1441, 1442.  
CHEM 1301, 1302, 1284, 2181, 2321, 2182, and 2322.

**Major:** \*40 hours including 1447, 1448, 2313, 2345, 2451, 3315, 4101; 12 hours chosen from 3344, 3345, 3348, 4340, 4343; and six more hours of advanced biology.

**Minor:** 18 hours in a single field, six of which must be advanced.

**Total Hours:** 132 hours, of which at least 36 must be advanced, plus physical education or marching band or military science as required.

\*Students interested in and qualified for the advanced standing examinations or the advanced placement examination in biology should refer to the section "College Credit By Examination" in the Admission section of this catalog.

**Suggested Course Sequence:**

**FRESHMAN YEAR**

Freshman curricula will be that prescribed under Option 1.

**SOPHOMORE YEAR**

**First Semester:** English (2000 literature), 3 hours; CHEM 2181, 2321; POLS 2311; BIOL 2345; BIOL 2451; Physical Education or Military Science or Marching Band — Total Credit 18 or 19 hours.

**Second Semester:** English (2000 literature), 3 hours; CHEM 2182, 2322; POLS 2312; BIOL 2313; BIOL 3348; Physical Education or Military Science — Total Credit 17 or 18 hours.

**JUNIOR YEAR**

**First Semester:** BIOL 3345; BIOL 3315; BIOL 3181; PHYS 1441; Foreign Language 1441; Minor Elective (advanced), 3 hours — Total Credit 18 hours.

**Second Semester:** BIOL 3344 or 4343; Biology Elective (advanced), 3 hours; PHYS 1442; Foreign Language 1442; Minor Elective (advanced), 3 hours — Total Credit 17 hours.

**SENIOR YEAR**

**First Semester:** BIOL 4340; Foreign Language, 3 hours; Electives, 9 hours — Total Credit 15 hours.

**Second Semester:** Biology Elective (advanced), 3 hours; Elective, 3 hours; Electives (advanced), 9 hours — Total Credit 15 hours.

## **BIOLOGY**

### **REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN BIOLOGY**

#### **(Option 4 — Ecology, Environmental Biology, Natural History)**

Requirements for English, foreign language, political science, history, mathematics, electives, and science other than biology are the same as those listed for Option 1.

**Major:** 39 hours including 1447, 1448, 2313, 2345, 2451, 2452 or 3455, 3315, 3181, 3442 or 3443, and nine hours of advanced electives.

**Minor:** 18 hours in a single field, six of which must be advanced.

**Total Hours:** 131 hours, of which at least 36 must be advanced, plus physical education or marching band or military science as required.

#### ***Suggested Course Sequence:***

##### **FRESHMAN YEAR**

**Freshman curricula will be that prescribed under Option 1.**

##### **SOPHOMORE YEAR**

**First Semester:** English (2000 literature), 3 hours; CHEM 2181, 2321; BIOL 2345; BIOL 2451; POLS 2311; Physical Education or Military Science or Marching Band — Total Credit 18 or 19 hours.

**Second Semester:** English (2000 literature), 3 hours; CHEM 2182, 2322; BIOL 2313; POLS 2312; Elective, 3 hours; Physical Education or Military Science — Total Credit 17 or 18 hours.

##### **JUNIOR YEAR**

**First Semester:** BIOL 2452 or 3455; Foreign Language 1441; PHYS 1441; Electives, 3 hours — Total Credit 15 hours.

**Second Semester:** BIOL 3315; BIOL 3181; Foreign Language 1442; PHYS 1442; Electives, 6 hours — Total Credit 18 hours.

##### **SENIOR YEAR**

**First Semester:** BIOL 3442 or 3443; Biology Electives (advanced), 3 hours; Foreign Language, 3 hours; Electives, 6 hours — Total Credit 16 hours.

**Second Semester:** Biology Electives (advanced), 6 hours; Electives, 9 hours — Total Credit 15 hours.



**REQUIREMENTS FOR A BACHELOR OF SCIENCE  
DEGREE IN BIOLOGY  
(Option 5 — Physiology)**

Requirements for English, foreign language, political science, history, mathematics, and electives are the same as those listed for Option 1.

**Science Other**

**Than Biology:** PHYS 1441, 1442.

**Major:** \*35 hours including 1447, 1448, 2345, 3301, 3315, 3442 and three listed biology electives to be chosen from 3312, 3443, 4455, 4340 or 4440, 4315, and 4443, plus sufficient biology electives to give the total number of hours required for the major.

**Minor:** CHEM 1301, 1302, 1284, 2181, 2321, 2182, 2322, 4311, and three hours chosen from either 3301 or 4312.

**Total Hours:** 128 of which 36 must be advanced, plus physical education or marching band or military science as required.

\*Students interested in and qualified for the advanced standing examinations or the advanced placement examination in biology should refer to the section "College Credit By Examination" in the Admission section of this catalog.

**Suggested Course Sequence:**

**FRESHMAN YEAR**

Freshman curricula will be that prescribed under Option 1.

**SOPHOMORE YEAR**

**First Semester:** English (2000 literature), 3 hours; PHYS 1441; CHEM 2181, 2321; POLS 2312; BIOL 2345; Physical Education or Military Science or Marching Band — Total Credit 18 or 19 hours.

**Second Semester:** English (2000 literature), 3 hours; CHEM 2182, 2322; PHYS 1442; BIOL 3301; POLS 2312; Physical Education or Military Science — Total Credit 18 or 19 hours.

**JUNIOR YEAR**

**First Semester:** Foreign Language 1441; CHEM 4311; BIOL 3442; BIOL 3315; Elective (outside), 3 hours — Total Credit 17 hours.

**Second Semester:** Listed Biology elective, 3 or 4 hours; Elective (outside), 3 hours; Elective (advanced), 3 hours; Foreign Language 1442; CHEM 3301 or 4312 — Total Credit 16 or 17 hours.

**SENIOR YEAR**

**First Semester:** Listed Biology electives, 3-4 hours; Foreign Language (2000), 3 hours; Elective (advanced), 3 hours; Biology elective (advanced), 3-4 hours — Total Credit 12 or 14 hours.

**Second Semester:** Listed Biology elective, 3-4 hours; Elective (outside), 3 hours; Electives (advanced), 3-7 hours as required — Total Credit 9 to 14 hours.

## BIOLOGY

### REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN MICROBIOLOGY

<b>English:</b>	1301, 1302, plus six hours of additional English.
<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Mathematics:</b>	*1311, 1312 or equivalent.
<b>Outside Electives:</b>	Nine hours outside engineering, mathematics, and the sciences. Courses in psychology may be used to satisfy this requirement. Sufficient to give the total number of hours required for a degree.
<b>Electives:</b>	
<b>Science Other Than Biology:</b>	PHYS 1441, 1442.
<b>Major:</b>	**33 hours including 1447, 1448, 2345, 2451 plus 18 hours of advanced biology-microbiology electives to be chosen from 3181, 3312, 3314, 3315, 3325, 3350, 3353, 3314, 3350, 3443, 4302, 4312, 4346, 4351, 4354, 4440, 4445, 4450, 4461, and including at least nine hours of microbiology laboratory courses chosen from 3350, 3353, 4346, 4354, 4445, 4450, and 4461.
<b>Minor:</b>	CHEM 1301, 1302, 1284, 2181, 2321, 2182, 2322, 4311 and three hours chosen from 3301 or 4312.

**Total Hours:** 125 hours, of which at least 36 must be advanced, plus physical education or marching band or military science as required.

\*In cooperation with the Biology Department, the Mathematics Department offers a two-semester course (Calculus with Analytic Geometry I and II — MATH 1311 and 1312, for biology majors to satisfy their mathematics course requirements. In this alternative, subjects and problems relevant to the biological and biomedical sciences are emphasized. If the student is not qualified to take MATH 1311 when he/she enters, he/she must complete the prerequisites for the course. This may add three to six hours to the total required for the degree. No course prerequisite for MATH 1311 will be counted as credit toward graduation.

\*\*Students interested in and qualified for the advanced standing examination or the advanced placement examination in biology should refer to the section "College Credit By Examination" in the Admission section of this catalog.

#### **Suggested Course Sequence:**

##### FRESHMAN YEAR

**First Semester:** ENGL 1301; Foreign Language 1441; CHEM 1301; BIOL 1447; Physical Education or Marching Band or Military Science — Total Credit 15 hours.

**Second Semester:** ENGL 1302; Foreign Language 1442; CHEM 1302; CHEM 1284; BIOL 1448; Physical Education or Military Science — Total Credit 17 hours.

##### SOPHOMORE YEAR

**First Semester:** English, 3 hours; CHEM 2181, 2321; MATH 1311; BIOL 2345; Foreign Language 2313; Physical Education or Marching Band or Military Science — Total Credit 17 or 18 hours.

**Second Semester:** English, 3 hours; CHEM 2182, 2322; MATH 1312; BIOL 2451; Elective (outside), 3 hours; Physical Education or Military Science — Total Credit 18 or 19 hours.

##### JUNIOR YEAR

**First Semester:** Biology/Microbiology Electives\*, 6 hours; CHEM 4311; POLS 2311; PHYS 1441 — Total Credit 16 hours.

**Second Semester:** Biology/Microbiology Elective\*, 3 hours; CHEM 3301 or 4312; POLS 2312; PHYS 1442; Elective (outside), 3 hours — Total Credit 16 hours.

##### SENIOR YEAR

**First Semester:** Biology/Microbiology Electives\*, 6 hours; HIST 2311; Elective (outside), 3 hours; Elective (advanced), 3 hours — Total Credit 15 hours.

**Second Semester:** Biology/Microbiology Elective\*, 3 hours; HIST 2312; Electives (advanced), 9 hours — Total Credit 15 hours.

\*Biology/Microbiology Electives may be chosen from BIOL 3181, 3312, 3314, 3315, 3350, 3353, 3443, 4312, 4346, 4351, 4361, 4440, 4445, 4450. Selections should be made with the aid of the student's advisor.

## BACHELOR OF SCIENCE DEGREE IN MEDICAL TECHNOLOGY

A student who completes the combination degree plan given below plus the senior year training program consisting of 12 months of clinical laboratory training in a hospital school of medical technology approved by the Committee on Allied Health Education and Accreditation (CAHEA), in conjunction with the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), may receive the degree of Bachelor of Science, to be conferred by The University of Texas at Arlington. Graduates may obtain certification by passing the examination of the Board of Registry of the American Society of Clinical Pathologists (ASCP).

<b>English:</b>	1301, 1302, plus six hours of additional English.
<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Mathematics:</b>	1302, 1318 or equivalent.
<b>Outside Electives:</b>	Nine hours outside engineering, mathematics, and the sciences. Courses in psychology may be used to satisfy this requirement. Three hours must be advanced.
<b>Science Other Than Biology:</b>	Physics 1441, 1442.
<b>Major:</b>	29 hours including 1447, 1448, 2451, 2455, 3312, 3353, and 4450 and a three-hour advanced biology elective.
<b>Minor:</b>	CHEM 1301, 1302, 1284, 2451, 3450.
<b>Total Hours:</b>	103 hours, of which 20 must be advanced, plus physical education or marching band or military science as required plus 12 months training in a school of medical technology approved by the Committee on Allied Health Education and Accreditation (CAHEA) in conjunction with the National Accrediting Agency for Clinical Laboratory Science (NAACLS).

### ***Suggested Course Sequence:***

#### FRESHMAN YEAR

**First Semester:** ENGL 1301; MATH 1302; CHEM 1301; BIOL 1447; HIST 1311; Physical Education or Marching Band or Military Science — Total Credit 17 hours.

**Second Semester:** ENGL 1302; MATH 1318; CHEM 1302; CHEM 1284; BIOL 1448; HIST 1312; Physical Education or Military Science — Total Credit 19 hours.

#### SOPHOMORE YEAR

**First Semester:** English, 3 hours; POLS 2311; BIOL 2455; CHEM 3450; Non-science Elective, 3 hours; Physical Education or Marching Band or Military Science — Total Credit 18 or 19 hours.

**Second Semester:** English, 3 hours; POLS 2312; BIOL 2451; Foreign Language 1441; CHEM 2451 — Total Credit 18 hours.

#### JUNIOR YEAR

**First Semester:** BIOL 3312; Foreign Language 1442; PHYS 1441; Biology (advanced), 3 hours; Non-science Elective, 3 hours — Total Credit 17 hours.

**Second Semester:** BIOL 3353; PHYS 1442; BIOL 4450; Non-science Elective (advanced), 3 hours; Foreign Language, 3 hours; Physical Education or Military Science — Total Credit 18 or 19 hours.

#### SENIOR YEAR

**Twelve months in a school of medical technology approved by the Committee on Allied Health Education and Accreditation (CAHEA) in conjunction with the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).**

## BIOLOGY

### BIOLOGY (PRE-PHARMACY)

The pre-pharmacy curriculum consists of two academic years. The applicant will be evaluated on the basis of the quality of his/her overall academic performance. In order to complete his/her requirement for the degree, an applicant will need to take three full years of course work in pharmacy at an accredited school of pharmacy. The Pharmacy College Admission Test (PCAT) is required by all colleges of pharmacy.

#### **Suggested Course Sequence:**

#### FRESHMAN YEAR

**First Semester:** ENGL 1301; \*MATH 1325; CHEM 1301; BIOL 1447; HIST 1311; Physical Education or Marching Band or Military Science — Total Credit 17 hours.

**Second Semester:** ENGL 1302; MATH 1326; CHEM 1302; CHEM 1284; BIOL 1448; HIST 1312; Physical Education or Military Science — Total Credit 19 hours.

**\*If the student is not qualified to take MATH 1325 when he/she enters, he/she must complete the prerequisites for the course. This may add three to six hours to the total required for the degree.**

#### SOPHOMORE YEAR

**First Semester:** SPCH 1301; CHEM 2181, 2321; PHYS 1441; POLS 2311; BIOL 2455 — Total Credit 18 hours.

**Second Semester:** BIOL 2451; CHEM 2182, 2322; PHYS 1442; POLS 2312; ECON 2305 — Total Credit 18 hours.

### BIOLOGY (PRE-VETERINARY MEDICINE)

The minimum requirement for enrollment in the professional veterinary medicine curriculum at Texas A&M University College of Veterinary Medicine is 66 semester hours of acceptable college or university credit to include the following:

- Animal Science:** — Six semester hours (to include animal nutrition to be taken on A&M campus).
- Biology:** — Six semester hours (to include both plant and animal biology).
- Chemistry:** — 16 semester hours (to include at least five hours of acceptable organic chemistry).
- English:** — Nine semester hours.
- Genetics:** — Three semester hours.
- History:** — Six semester hours (U.S. history).
- Mathematics:** — Six semester hours (to include calculus).
- Physics:** — Eight semester hours.
- Political Science:** — Six semester hours (U.S. and Texas state and local government).
- Total:** 66 semester hours

**Admissions note: No pass/fail grades are accepted on the required courses and a grade of C is required. The MCAT (Medical College Admission Test) will be used instead of the GRE (Graduate Record Exam). Applications are required by October 1 for the succeeding year.**

**Specific information on recommended courses at The University of Texas at Arlington can be obtained in the Department of Biology.**

### BIOLOGY (PRE-PHYSICAL THERAPY)

A student must complete a minimum of 65 semester hours, or their equivalent, to be admitted to the professional curriculum at The University of Texas School of Allied Health Sciences at Galveston. At The University of Texas at Arlington these 65 hours should include the courses listed below. The professional curriculum (junior and senior years) consists of approximately 24 months of study leading to the Bachelor of Science in Physical Therapy.

**The School of Allied Health Sciences  
The University of Texas Medical Branch, Galveston, Texas**

ENGL 1301, 1302	6 Hours
SPCH 1301	3
BIOL 1447, 1448, 2452, 3442	16
PHYS 1441, 1442	8
CHEM 1301, 1302	6
HIST 1311, 1312	6
POLS 2311, 2312	6
SOCI 1311	6
PSYC 1315, 3305, 3314	9
PSYC 2441 or SOCI 3352	3 or 4
	<hr/>
	69 or 70

A student must complete a minimum of 90 semester hours, or their equivalent, to be admitted to the professional curriculum at The University of Texas School of Allied Health Sciences at Dallas. At The University of Texas at Arlington these 90 hours should include the courses in the list below.

**The School of Allied Health Sciences  
University of Texas Health Science Center, Dallas, Texas**

ENGL 1301, 1302	6Hours
MATH 1302 or equivalent	3
HIST 1311, 1312	6
POLS 2311, 2312	6
SOCI 1311	3
SPCH 1301	3
PHYS 1441, 1442	8
CHEM 1301, 1302, 1284	8
BIOL 1447, 1448, 2452, 3442	16
SPCH 2303	3
PSYC 1315, 3305, 3309	9
PSYC 2441 or SOCI 3352	3
Electives — to total at least 90 semester hours (at least 9 advanced) including specific prerequisites	16
	<hr/>
	90

The professional curriculum (fourth or senior year) consists of approximately 14 months of study leading to the Bachelor of Science in Physical Therapy.

**BIOLOGY (BIOL)**

Chairman: Professor McDonald  
Professors Arnott, Hall, Hellier, McCrady, Meacham  
Associate Professors Bacon, Boley, Bragg, Butler, Frye, Gladden, McMahon, Neill, Phillips, Stewart, D. Whitmore  
Assistant Professors Chrzanowski, Sandgren, Sharp, Smatresk, Robinson  
Visiting Assistant Professor E. Whitmore

**Designation of Semester in Which Courses Are Offered**

To assist the student in planning his/her sequence of courses, all biology courses carry an indication as to when they are usually taught. However, the Department of Biology reserves the right to change the semester in which any course is taught in accordance with unforeseen conditions.

Designations are: F — Fall, S — Spring, SSI — First Summer Session, SSII — Second Summer Session, I — Irregular.

**1301. NUTRITION (3-0)** 3 hours credit — Nutrients essential to an adequate diet and good health. The nutritive values of common foods. Also listed as HEED 1301. Credit will be granted for only one of these courses. Students seeking certification in Health Education must enroll in HEED 1301. Students seeking credit toward their science requirement must enroll in BIOL 1301. Cannot be counted toward a BS degree in biology. **F, S.**

**1447. GENERAL BIOLOGY (3-2)** 4 hours credit — Fundamental principles applicable to all living organisms. The molecular basis of life, cell structure and function, basic metabolic processes, and biological regulatory mechanisms. **\$2 lab fee. F, S, SSI, SSII.**

**1448. GENERAL BIOLOGY (3-2)** 4 hours credit — Fundamental principles applicable to all living organisms. Growth, reproduction, hereditary and evolutionary concepts, ecological principles and a brief survey of the plant and animal groups. Prerequisite: BIOL 1447 or its equivalent. **\$2 lab fee. F, S, SSI, SSII.**

## BIOLOGY

**1450. NATIVE PLANTS** (3-3) 4 hours credit — A field-oriented introduction to the native flora of North Texas emphasizing the recognition and naming of members of the local flora, including those species which are edible, or otherwise potentially useful, or potentially harmful. May not be counted for major credit toward a degree in biology. **\$4 lab fee. S.**

**2310. PRINCIPLES OF HEALTH** (3-0) 3 hours credit — The use of positive health practices which prevent illness, maintain health and promote wellness. Overview of holistic health, stress management, mental health, physical health, reproductive health, and community health. Students assess their health status, research a health-related area of their interest, and visit a community health agency. May not be counted for credit toward the BS degree in biology. **F, S, SSI.**

**2311. MAN AND ENVIRONMENT** (3-0) 3 hours credit — Some major problems facing man in our modern technological society. Population problems, resource depletion, and pollution. Prerequisite: one year of laboratory science. May not be counted for credit toward the BS degree in biology. Credit will not be granted for both BIOL 2311 and 2313. **F, S, SSII.**

**2312. HEREDITY AND HUMAN AFFAIRS** (3-0) 3 hours credit — The basic principles of heredity with special emphasis on man and the problems associated with recent advances in the field of genetics. Prerequisite: one year of biological science. Cannot be counted for credit toward the BS degree in biology. **S.**

**2313. GENERAL ECOLOGY** (3-0) 3 hours credit — General principles dealing with environmental factors and their influence on organisms. Eco-system and community concepts. Prerequisite: BIOL 1448 or its equivalent. Credit will not be granted for both BIOL 2313 and 2311. **F, S, SSI.**

**2315. PLANTS AND MAN** (3-0) 3 hours credit — Plants that are sources of products important to mankind. Prerequisite: BIOL 1447 and 1448 or equivalent. May not be counted for major credit toward a degree in biology. **S.**

**2317. BASIC CONCEPTS IN HUMAN SEXUALITY** (3-0) 3 hours credit — The physiological, psychological, and sociological aspects of human sexuality. Also listed as HEED 2317, SOCI 2317, and PSYC 2317. Credit will be granted for one of these four courses only. Students seeking certification in Health Education must enroll in HEED 2317. Students seeking credit toward their science requirement must enroll in BIOL 2317. Cannot be counted for major credit toward a degree in biology, psychology, or sociology. **F, S.**

**2345. GENERAL BOTANY** (2-3) 3 hours credit — A systematic survey of the plants with emphasis on organization, physiology, life histories, genetics, and ecological adaptations. Prerequisites: BIOL 1447 and 1448 or the equivalent. **\$2 lab fee. F, S, SSI, SSII.**

**2450. MICROBIOLOGY** (3-3) 4 hours credit — Principles and techniques of microbiology. Prerequisite: one semester of biological science. Satisfies the requirements of the pre-nursing program; not for biology majors. BIOL 2450 and 2451 may not both be taken for credit. **\$4 lab fee. F, S.**

**2451. GENERAL MICROBIOLOGY** (3-3) 4 hours credit — The higher protists and the bacteria and blue-green algae. A comparative study of the structure and function of the microbial cell. Bacteria will be used in the laboratory to provide training in experimental methodology. Prerequisites: six hours of biology and one year of chemistry. **\$4 lab fee. F, S, SSI, SSII.**

**2452. COMPARATIVE VERTEBRATE ANATOMY** (3-4) 4 hours credit — A comparative study of the anatomy of the protochordates and the vertebrates. The laboratory includes a detailed study of the shark and the cat. Prerequisite: BIOL 1448 or its equivalent. **\$8 lab fee. F, S.**

**2455. HUMAN ANATOMY AND PHYSIOLOGY** (3-3) 4 hours credit — Lectures consider the functional morphology of the human organism from the cellular to organismal level. Laboratory exercises involve detailed anatomical studies as well as experimental laboratory exercises relating to the principles introduced in the lecture. Primarily for physical education majors and students in the medical technology and pre-nursing programs. Prerequisites: BIOL 1447 and 1448 or the equivalent. Cannot be counted toward a BS degree in biology. **\$4 lab fee. F, S, SSI.**

**3181. LABORATORY IN GENETICS** (0-3) 1 hour credit — An experimental laboratory in which breeding experiments with certain plants, Neurospora and Drosophila are used to verify the principles of classical genetics. In addition, studies on probability theory and analysis of results, population genetics, and salivary gland chromosomes are completed. Prerequisite: BIOL 3315 or concurrent enrollment. **\$4 lab fee. F, S.**

**3301. CELL PHYSIOLOGY** (3-0) 3 hours credit — An introduction to the basic physical, chemical, and biological principles which govern function in eukaryotic cells, and the relationships between cells and their environments. Prerequisites: BIOL 1447 and 1448 or equivalents, and CHEM 2322, or concurrent enrollment. **S.**

**3310. SELECTED TOPICS IN BIOLOGY** (3-0) 3 hours credit — Biological topics not treated in the regular curriculum. Topic, format, and prerequisites to be determined by the instructor. May be repeated for biology elective credit as different topics are offered. **I.**

**3311. MEDICAL ENTOMOLOGY** (3-0) 3 hours credit — The insects and related arthropods of importance as vectors and the parasites of man and other vertebrates. Life cycles, biology, and recognition of the more important insects and arachnids emphasized. Prerequisite: one year of biological science. **S, SSII.**



- 3312. IMMUNOBIOLOGY (3-0)** 3 hours credit — An introduction to the components, properties, and manifestations of the adaptive immune response that occurs in vertebrates. Prerequisites: 15 hours of biology including 2451. BIOL 2455 or 3443 and CHEM 3450 or 2181, 2321 are recommended. **F, S, SSI.**
- 3314. EPIDEMIOLOGY (3-0)** 3 hours credit — Basic terms and methods of reasoning in the epidemiological approach. The role of epidemics in history and modern times. Ecological and ethological aspects of the epidemic and epizootic process. Contagion, the germ theory, the causation theory; epidemiological research, as well as theoretical epidemiology. Prerequisite: 12 hours of biology including a course in microbiology. **F (odd years).**
- 3315. GENETICS (3-0)** 3 hours credit — Principles of molecular and classical genetics. The function and transmission of hereditary material in microorganisms, plants, and animals, including man. BIOL 2312 and 3315 may not both be taken for credit. Prerequisites: 12 hours of biology science and junior standing. **F, S.**
- 3317. ADVANCED NUTRITION (3-0)** 3 hours credit — Nutritional topics from recent literature on current diet and health areas. Course will look at contemporary issues that exist in the field of nutrition. Prerequisites: 12 hours of biology including BIOL 1301. Not to be counted for major credit towards a degree in biology. May be counted as an elective. **I.**
- 3325. AQUATIC MICROBIOLOGY (3-0)** 3 hours credit — A synopsis of present knowledge concerning aquatic bacteria and fungi and the role of these organisms in lakes, rivers, and seas. Lecture topics include distribution patterns, role of microorganisms in the origin of mineral resources, microorganisms and pollution, and current developments on energy flow through microbial communities. Prerequisites: BIOL 2451 or 2313 or consent of instructor. **S.**
- 3326. ANIMAL BEHAVIOR (3-0)** 3 hours credit — A survey of research and theory comparing behavior at various phyletic levels. Also listed as PSYC 3326. Credit will be granted for only one of these courses. Cannot be counted for major credit toward a degree in biology. Prerequisite: BIOL 1447, 1448, and junior standing. **I.**
- 3341. ENTOMOLOGY (2-3)** 3 credit — This course is a study of the basic principles of insect life including structure, physiology, life cycles, and classification. Certain related arthropods are included. Lab work emphasizes collection and identification of local insects. Prerequisites: BIOL 1447 and 1448 or the equivalent. **\$2 lab fee. F, SSI.**
- 3344. PLANT MORPHOLOGY (2-3)** 3 hours credit — The development, comparative structures, and life cycles of the vascular plants. Prerequisite: BIOL 2345. **\$2 lab fee. S (even years).**
- 3345. NONVASCULAR PLANTS (2-3)** 3 hours credit — The morphology, taxonomy, ecology, and evolution of lower plants including the algae, bryophytes, fungi, and lichens. Prerequisite: BIOL 2345 or equivalent. **\$4 lab fee. F.**
- 3348. PLANT SYSTEMATICS (2-3)** 3 hours credit — The biology of plants, their classification, general morphology, and environmental relationships. Lab work includes the identification of local and Texas flora. Prerequisite: 12 semester hours of biological science including BIOL 2345. **\$2 lab fee. S.**
- 3350. DETERMINATIVE BACTERIOLOGY (1-6)** 3 hours credit — Laboratory oriented. Practical aspects of bacterial nutrition, enrichment, isolation, identification, enumeration, and cultivation. Prerequisite: 12 hours of biology including 2451. **\$4 lab fee. F.**
- 3353. PATHOGENIC BACTERIOLOGY (2-3)** 3 hours credit — The major groups of disease-causing bacteria, including group characteristics, host ranges, pathogenic mechanisms, and public health significance. Prerequisite: 15 hours of biology including 2451. **\$4 lab fee. F, S, SSI.**
- 3355. NATURAL HISTORY OF VERTEBRATES (2-3)** 3 hours credit — Systematics, life histories, ethology and distribution of world vertebrates, with emphasis on fauna of southwestern United States. Prerequisite: eight semester hours of biological science or equivalent. **\$2 lab fee. F, S.**
- 3442. PRINCIPLES OF ANIMAL PHYSIOLOGY (3-3)** 4 hours credit — A comparative study of animal function. Evidence from different groups of animals, particularly the vertebrates, to identify the general principles of physiological mechanisms operating at the cellular, tissue, organ, and organismal levels. Laboratory studies will complement lecture material and will stress experimental design, data analysis, and the understanding of critical research in physiology. Prerequisite: BIOL 3301 or 12 hours of biological science. **\$4 lab fee. F, S.**
- 3443. CELL BIOLOGY (3-3)** 4 hours credit — A survey of current knowledge of cell structure and function from the microscopic to the molecular level. Prerequisites: 12 hours of biological science, one year of chemistry, and junior standing. Formerly BIOL 3343 (CYTOLOGY); credit will be granted only once. **\$4 lab fee. F, S.**
- 3446. VERTEBRATE EMBRYOLOGY (3-3)** 4 hours credit — Patterns and principles of vertebrate development, including human embryology. A survey of descriptive and experimental studies concerning the origins, movements, interactions, and destinies of cells and tissues within developing embryos. Prerequisites: 12 hours of laboratory biology and junior standing. **\$4 lab fee. F.**
- 3455. THE LIFE OF INVERTEBRATES (3-4)** 4 hours credit — The structure, function, ecology, and evolution of the invertebrate animals. Surveys all invertebrate groups with the exception of protozoans and insects and includes the invertebrate chordates. Emphasis on the ecologically important phyla. Prerequisites: 12 hours of biological science. **\$4 lab fee. F.**

## BIOLOGY

- 4101. SELECTED TOPICS IN BOTANY** (1-0) 1 hour credit — A seminar dealing with botanical literature and research. Prerequisite: 18 hours of biology. **I.**
- 4105. FACULTY RESEARCH SEMINARS** (1-0) 1 hours credit — Seminars introducing students to biology research programs. Visits to faculty research laboratories will be arranged. Grading will be on a pass/fail basis. Prerequisite: junior standing or consent of the instructor. **F.**
- 4189, 4289, 4389. RESEARCH IN BIOLOGY** (Variable credit 1-3 hours as arranged) — Research problems on an individual basis, conducted under the direction of a member of the biology faculty. May be repeated for credit to a maximum of six hours. Three hours may be counted for major elective credit. An additional three hours may be counted as advanced elective credit outside the major. Prerequisite: written permission of the supervising instructor prior to registration. **Lab fee — \$2 per credit hour. F, S, SSI, SSII.**
- 4191. PROBLEMS IN BIOLOGY** (1-0) 1 hour credit — Special problems in biology, assigned on an individual basis. A detailed written report on the problem is generally required by the faculty supervisor. May be repeated one time for credit. A maximum of two hours credit will be allowed for 4000 level problems in biology courses. Prerequisites: senior classification and permission of the department prior to registration. **F, S, SSI, SSII.**
- 4193. SCIENCE LEARNING CENTER BIOLOGICAL INSTRUCTION** 1 hour credit — Students work four to five hours per week in the Science Learning Center as facilitators to persons enrolled in the BIOL 1447 and 1448 audio-visual sections. May be repeated once for credit. Prerequisites: a 3.0 GPA in 16 hours of biological science and prior approval of the instructor. This course will be graded on a pass-fail (P-F) basis. **F, S.**
- 4302. MICROBIAL GENETICS** (3-0) 3 hours credit — Consideration of the physical, chemical, and functional nature of genetic processes in micro-organisms. Prerequisites: BIOL 2451 and 3315 or their equivalent. **I.**
- 4312. INTRODUCTION TO VIROLOGY** (3-0) 3 hours credit — The nature, reproduction, and host cell interactions of viruses and virus-like agents of bacteria, animals, and plants. Prerequisite: 20 hours of biology including 2451 or its equivalent. **F, SSI.**
- 4315. GENERAL ENDOCRINOLOGY** (3-0) 3 hours credit — The vertebrate endocrine system. The cellular origin of hormones, their role in physiological regulation, and the mechanism of hormone action. Prerequisites: 18 hours of biology and senior standing. Biochemistry is strongly recommended. **I.**
- 4317. DEVELOPMENTAL BIOLOGY** (3-0) 3 hours credit — Analyses of control mechanisms governing the formation and subsequent reorganizations of developing systems in animal embryos. Classical and current investigations of differentiation, determination, induction, pattern formation, cell migration, and tissue assembly during embryogenesis and organogenesis. Prerequisite: BIOL 3446. **S.**
- 4338. COMMUNITY ECOLOGY** (3-0) 3 hours credit — The effects interspecific interactions have on the distribution and abundance of organisms. Prerequisite: 12 semester hours of biological science, including three semester hours of ecology. **S.**
- 4339. EVOLUTION** (3-0) 3 hours credit — Processes and mechanisms which cause evolutionary changes in organisms. Prerequisite: BIOL 3315. **F.**
- 4340. PLANT PHYSIOLOGY** (2-3) 3 hours credit — The relationship of plant metabolism to cellular organization and the interaction of environmental, metabolic, and hormonal factors of vegetative growth and reproduction. Laboratory techniques applicable to specific problems in growth, development, nutrition, and metabolism. Prerequisite: 12 hours of biological science, including BIOL 2345. **\$4 lab fee. F (odd years).**
- 4343. PLANT ANATOMY** (2-3) 3 hours credit — The internal structure of the existing seed plants, with emphasis on the angiosperms. Prerequisite: 12 hours of biological science, including BIOL 2345. **\$4 lab fee. F (even years).**
- 4346. GENERAL MYCOLOGY** (2-3) 3 hours credit — A survey of the fungi; their morphology, taxonomy, life cycles, and identification of representative organisms. Prerequisites: 12 hours of biological science, including a course in microbiology, and BIOL 2345 or permission of the instructor. **\$4 lab fee. F, SSII.**
- 4347. LIMNOLOGY** (2-3) 3 hours credit — The living and nonliving components of inland waters. Emphasis on the physical and chemical characteristics of inland waters that are involved in making the aquatic environment a suitable habitat for living organisms. The lab is designed to acquaint the student with the aquatic environment of the Southwest. Prerequisite: six hours of general chemistry plus 12 hours of biology. **\$2 lab fee. F.**
- 4348. AQUATIC BIOLOGY** (2-3) 3 hours credit — Ecological relationships in aquatic ecosystems, with emphasis on fresh water systems. The lab is designed to acquaint the student with pond, stream, and reservoir habitats of the Southwest. Prerequisites: 12 hours of biological science including three hours of ecology and three hours of limnology. **S.**
- 4351. IMMUNITY TO PARASITES** (3-0) 3 hours credit — Vertebrate and invertebrate immune responses to protozoan and metazoan parasites. Mechanisms by which parasites modify the immunological responsiveness of their hosts. Prerequisite: BIOL 3312. **F, (even years).**

- 4354. MEDICAL MYCOLOGY** (2-3) 3 hours credit — Study of the structure, reproductive cycles, and the phylogeny of representative fungi that are pathogenic in humans and other animals. Methods and techniques used in studying these fungi and common contaminants will be covered. Superficial fungi will be investigated in the laboratory while the fungi causing superficial, subcutaneous, and systematic infections will be discussed in theory. Prerequisites: 12 hours of biological science including a course in microbiology and BIOL 4346. **S.**
- 4358. HISTOLOGICAL AND CYTOLOGICAL TECHNIQUES** (2-3) 3 hours credit — Lectures cover the principles and most advanced methods of preparing tissue section slides for examination with the light microscope. The laboratory consists of practice preparing slides of representative plant and animal tissues for both morphological and cytochemical study and, at the student's option, may also include preparing specimens of research interest to individual students. Prerequisites: general physics, general and organic chemistry, 18 hours of biological science including BIOL 3443 or equivalent, or consent of the instructor. **\$4 lab fee. S.**
- 4359. BIOLOGICAL ULTRASTRUCTURE** (2-3) 3 hours credit — Cells and their organelles as revealed by the electron microscope and other techniques. Analysis of ultrastructural data. Prerequisite: 12 hours of biology including BIOL 3443 or consent of the instructor. **\$2 lab fee. I.**
- 4392. BIOLOGICAL MATERIALS FOR TEACHERS** (2-3) 3 hours credit — The problems, techniques and procedures involved in the teaching of high school biology. **F, SSI.**
- 4440. BACTERIAL PHYSIOLOGY** (3-3) 4 hours credit — An advanced survey of catabolic and anabolic metabolism of bacteria including a discussion of control of the major metabolic pathways. The laboratory portion of the course will consist of demonstration and seminars. Prerequisites: BIOL 4445, CHEM 2181, 2321; 2182, 2322; and 4311 (may be taken concurrently), or permission of the instructor. **I.**
- 4443. COMPARATIVE INVERTEBRATE PHYSIOLOGY** (3-3) 4 hours credit — Physiological mechanisms found in the invertebrate phyla. Comparisons of physiological adaptation in different phyla, evolution of physiological mechanisms, and environmental physiology. An unstructured problems laboratory where each student is expected to complete a project and write a final report. Prerequisite: BIOL 3455 or permission of the instructor. **I.**
- 4445. ADVANCED GENERAL MICROBIOLOGY** (3-3) 4 hours credit — Bacterial growth parameters. Lecture topics will deal with the major physiological groups of nonpathogenic bacteria. Laboratory exercises will concentrate on the enrichment, isolation, identification, mass culture, and determination of metabolic activities of bacteria. Prerequisites: organic chemistry and BIOL 2451 or permission of the instructor. **\$4 lab fee. F.**
- 4450. PARASITOLOGY** (3-3) 4 hours credit — The lecture portion deals with macro- and microecology of parasites, morphologic and physiologic adaptations to the parasitic way of life, host adaptations to parasitism and the effects of parasites on their hosts. The laboratory is concerned with clinical and veterinary parasitology, animal dissections, diagnosis of parasitic infections and identification of parasites. Prerequisite: 16 hours of laboratory biology. This course was formerly BIOL 4350; credit will not be granted for both. **\$5 lab fee. S.**
- 4455. VERTEBRATE PHYSIOLOGY** (3-3) 4 hours credit — An environmental approach to the study of physiological regulation in vertebrates, including consideration of energy metabolism, responses to temperature, water and solute metabolism, oxygen transport and acid-base regulation. Topics will be discussed in relation to current literature. The laboratory will introduce a variety of experimental methods used in physiological research. In addition, each student will select a small research project to be completed under supervision of the instructor. Prerequisite: BIOL 3442 or permission of instructor **F.**
- 4461. METHODS IN IMMUNOLOGY** (3-3) 4 hours credit — Theory and practice of the principal methods used in experimental investigations of antigens, antibodies, and immunocompetent cells. Use of these techniques in studies of taxonomy, physiology, biochemistry, epidemiological surveys and immunodiagnostic procedures will be discussed. Prerequisites: BIOL 3312 or its equivalent and one year of organic chemistry. **\$5 lab fee. I.**
- 4465. PHYCOLOGY** (3-3 hrs.) 4 hours credit — Study of marine, terrestrial, and freshwater algae. Lecture topics emphasize taxonomy, phylogeny, reproduction and contribution of algae to the world economy. Laboratory exercises emphasize classification, ecology, and techniques for collecting and culturing. Prerequisite: BIOL 2345 or its equivalent. **\$2 lab fee. I.**
- 4680. FIELD BIOLOGY** 6 hours credit — The behavior, ecology, and life histories of organisms under natural conditions. Offered only in the summer session. Prerequisite: senior or graduate standing. **\$8 lab fee. A special fee may be assessed. I.**

## BIOLOGY

### TEACHER CERTIFICATION

Biology majors who desire certification for teaching at the secondary level must fulfill the requirements for a second teaching field and must also take 18 hours of education as prescribed in the Education section of this catalog. Students majoring in other subjects who select biology as a second teaching field should take the following biology courses: 1447, 1448, 2345, 2450 or 2313 (physical education majors may substitute 2455), 3315, and nine advanced hours to be selected with joint approval of the biology and education advisors.

#### LIFE-EARTH MIDDLE SCHOOL (27 semester hours):

##### Eight semester hours of laboratory courses in general biology:

BIOL \*1447, \*1448 plus six semester hours of laboratory courses in general earth science: GEOL \*1345, \*1346.

##### 12 semester hours from the following:

six semester hours of laboratory courses in biology or earth science, or a combination of these, and six semester hours of advanced level courses in biology or earth science or a combination of these:

- A. BIOL 2345, 2450, plus six semester hours from: 3341, 3344, 3345, 3348, 3455, 3443, 3446, 4341, 4344, 4346, 4347, 4348, 4450, 4680. Note: all of the above are lab courses.
- B. Earth Science: GEOL \*\*3301, 3302, 3304, 3305, 3306, 3307, 3441.

\*Indicates a laboratory course (40% to 80% of instructional time is devoted to student laboratory courses).

\*\*Indicates that lab will be arranged for those students seeking certification in earth science. See departmental earth science representative.

### HEALTH RELATED PRE-PROFESSIONAL CURRICULA

The University of Texas at Arlington offers the pre-professional university work required for entering the fields of medical record administration, occupational therapy, and physical therapy. Upon successful completion of the required university work, the student may apply to one of The University of Texas Schools of Allied Health Sciences at Dallas, Galveston, Houston, or San Antonio for completion of the baccalaureate degree requirements in the chosen area.

Information concerning these programs may be obtained in the Department of Biology or by writing the respective schools.



# The Department of CHEMISTRY

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The Department of Chemistry offers three programs of study leading to the bachelor's degree and one leading to both the bachelor's and master's degree. They are the Bachelor of Arts in Chemistry, the Bachelor of Science in Chemistry, the Bachelor of Science in Biochemistry, and a combined Bachelor of Science-Master of Science in Chemistry.

1. **PROFESSIONAL CHEMIST** — Students who wish to become professional chemists should pursue the Bachelor of Science in Chemistry. Students whose ultimate goal includes a graduate education should consider the accelerated Bachelor of Science-Master of Arts combined program, which offers an unusual opportunity for professional advancement. Prospective students should contact the undergraduate advisor.
2. **PROFESSIONAL BIOCHEMIST** — Students who wish to become professional biochemists should pursue the Bachelor of Science in Biochemistry. Students whose ultimate goal includes a graduate education should consider the accelerated Bachelor of Science-Master of Arts combined program. Prospective students should contact the undergraduate advisor.
3. **PRE-MEDICAL AND PRE-DENTAL PROGRAMS** — Students who wish to prepare for entry into medical or dental school may choose to major in chemistry. While any of the three bachelor's programs will meet the minimum requirements, the Department of Chemistry recommends either the Bachelor of Arts in Chemistry or the Bachelor of Science in Biochemistry. Prospective students should contact the Department of Chemistry pre-medical advisor.
4. **PRE-ALLIED HEALTH PROGRAMS** — Students who wish to prepare for entry into pharmacy or veterinary school, nursing, medical technology, physical therapy or occupational therapy may choose to major in chemistry. Prospective students should contact the Department of Chemistry pre-allied health advisor.
5. **CHEMISTRY AS A TEACHING FIELD** — Although students who intend to teach chemistry at the secondary school level may pursue any of the degrees, the Bachelor of Arts Degree offers the greatest flexibility.
6. **CHEMISTRY FOR NON-SCIENCE MAJORS** — The Department of Chemistry offers a series of one- and two-credit-hour courses for the non-science major. These courses are termed "Chemistry for the Non-science Major." These courses cannot be used for major credit toward a degree in chemistry.

## SECOND MAJOR

A person who satisfies the requirements for any other baccalaureate degree qualifies for having chemistry named as a second major upon completion of 27 semester hours from among CHEM 2451 and chemistry courses with higher numbers. The specific courses to be used must be approved by the undergraduate advisor and the chairman of the Department of Chemistry.

## CHEMISTRY

### REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN CHEMISTRY

This program meets the standards for professional baccalaureate programs established by the American Chemical Society. It is recommended to students who plan to enter into graduate study in the sciences and for those who anticipate professional careers as chemists.

<b>English:</b>	1301, 1302, six hours of literature, or three hours of literature and ENGL 2334.
<b>Foreign Language:</b>	GERM 1441, 1442 and 2315, or RUSS 1451, 1452 and 2321, or FREN 1441, 1442 and 2315, or SPAN 1441, 1442 and 2313.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>*Mathematics:</b>	1325, 1326, 2325, 2326, 3318.
<b>Other Science:</b>	Biology or geology six to eight hours in one subject. PHYS 1443, 1444, and either 3313 or three additional hours above the sophomore level.
<b>Outside Electives:</b>	Nine hours outside engineering, mathematics, and the sciences. Courses in psychology may be used to satisfy this requirement.
<b>Other Electives:</b>	Sufficient number of hours to complete the total hours required for a degree.
<b>Major:</b>	CHEM 1284, 1301, 1302, 2181, 2182, 2321, 2322, 2451, 3181, 3182, 3321, 3322, 4101, 4216, 4315, 4346, 4461, and a minimum of three hours from 4301, 4311, 4321 and 4331.
<b>Minor:</b>	Eighteen hours in a single field; or 24 hours combination of any two. Six hours must be advanced.
<b>Total:</b>	131 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

**\*If the student is not qualified to take MATH 1325 when he/she enters, he/she must complete the prerequisites for the course. This may add three to six hours to the total required for the degree.**

#### ***Suggested Course Sequence:***

##### **FRESHMAN YEAR**

**First Semester:** ENGL 1301; MATH 1325; BIOL 1447 or GEOL 1345; CHEM 1301; HIST 1311; Elective 3 hours — Total Credit 18 or 19 hours.

**Second Semester:** ENGL 1302; MATH 1326; BIOL 1448 or GEOL 1346; CHEM 1302; CHEM 1284; HIST 1312; Physical Education or Military Science — Total Credit 18 or 19 hours.

##### **SOPHOMORE YEAR**

**First Semester:** English (literature), 3 hours; MATH 2325; PHYS 1443; CHEM 2181; CHEM 2321; CHEM 2451 — Total Credit 18 or 19 hours.

**Second Semester:** English (report writing or literature), 3 hours; MATH 2326; PHYS 1444; CHEM 2182; CHEM 2322; Physical Education or Military Science — Total Credit 15 or 16 hours.

##### **JUNIOR YEAR**

**First Semester:** POLS 2311; CHEM 3181; CHEM 3321; GERM 1441, RUSS 1451, FREN 1441, or SPAN 1441; MATH 3318; Physics, 3 or 4 hours; Physical Education or Military Science or Marching Band — Total Credit 18 or 19 hours.

**Second Semester:** POLS 2312; CHEM 3182; CHEM 3322; CHEM 4346; GERM 1442, RUSS 1452, FREN 1442, or SPAN 1442; Electives, 3 hours; Physical Education or Military Science — Total Credit 18 hours.

##### **SENIOR YEAR**

**First Semester:** CHEM 4315; CHEM 4461; CHEM 4101; GERM 2315, RUSS 2321, FREN 2315, or SPAN 2313; Electives, 6 hours — Total Credit 17 hours.

**Second Semester:** CHEM 4216; \*Chemistry, 3 hours; Electives, 8 hours — Total Credit 13 hours.

**\*Chosen from 4301, 4311, 4321, and 4331.**

## REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN CHEMISTRY

This program is suitable preparation for admission to medical and dental schools, other health-related professions, and for students who desire certification with a teaching field in chemistry.

<b>English:</b>	1301, 1302, and six hours of literature.
<b>Foreign Language:</b>	14 hours or equivalent as approved by the Department of Chemistry.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>*Mathematics:</b>	1325, 1326.
<b>Other Science:</b>	PHYS 1441 and 1442 and six to eight hours in either biology** or geology.
<b>Outside Electives:</b>	Nine hours outside science, engineering, and mathematics. Courses in psychology may be used to satisfy this requirement.
<b>Other Electives:</b>	Sufficient to complete the total hours required for the degree.
<b>Major:</b>	1284, 1301, 1302, 2181, 2182, 2321, 2322, 2451, 3301, 4311, and at least seven hours from 3307, 3310, 4101, 4242, 4301, 4303, 4312, and 4346.
<b>Minor:</b>	18 hours in a single field or 24 hours combination in two fields; six hours must be advanced. (Biology is recommended as a minor for pre-medical** and pre-dental students. Students who wish to qualify for a teaching certificate must include a second teaching field of 24 hours in their degree programs as well as 18 hours of education.)
<b>Total:</b>	121 hours of which at least 36 must be advanced, plus physical education or military science or marching band as required.

**\*If the student is not qualified to take MATH 1325 when he/she enters, he/she must complete the prerequisites for the course. This may add three to six hours to the total required for the degree. MATH 2325 is recommended for pre-medical students in addition to the minimum requirements.**

**\*\*The minimum biology requirement for pre-medical students is 1447 and 1448 and two additional courses. BIOL 2451 and 2452 are recommended.**

### ***Suggested Course Sequence:***

#### **FRESHMAN YEAR**

**First Semester:** CHEM 1301; Biology or Geology, 3 or 4 hours; ENGL 1301; MATH 1325; Elective, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 hours.

**Second Semester:** CHEM 1284; CHEM 1302; Biology or Geology, 3 or 4 hours; ENGL 1302; MATH 1326; Physical Education or Military Science — Total Credit 15 or 16 hours.

#### **SOPHOMORE YEAR**

**First Semester:** CHEM 2181; CHEM 2321; CHEM 2451; PHYS 1441; English (literature), 3 hours; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 hours.

**Second Semester:** CHEM 2182; CHEM 2322; PHYS 1442; HIST 1311; English (literature or report writing), 3 hours; Physical Education or Military Science — Total Credit 15 or 16 hours.

#### **JUNIOR YEAR**

**First Semester:** CHEM 3301; Foreign Language, 4 hours; POLS 2311; HIST 1312; \*\*Electives, 3 hours — Total Credit 16 hours.

**Second Semester:** \*Chemistry, 3 or 4 hours; Foreign Language, 4 hours; POLS 2312; \*\*Electives, 6 hours — Total Credit 16 or 17 hours.

#### **SENIOR YEAR**

**First Semester:** CHEM 4311; Foreign Language, 3 hours; \*\*Electives, 9 hours — Total Credit 15 hours.

**Second Semester:** \*Chemistry, 3 or 4 hours; Foreign Language, 3 hours; \*\*Electives, 9 hours — Total Credit 15 or 16 hours.

**\*See "Major" under general requirements.**

**\*\*The minor field requirement for pre-medical or pre-dental students or the requirements for a second teaching field and 18 hours of education for students desiring to qualify for a teaching certificate must be completed from the elective hours. See "Minor" under general requirements.**

## CHEMISTRY

### REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN BIOCHEMISTRY

This program is offered jointly between the Department of Chemistry of UTA and the Department of Biochemistry of The University of Texas Health Science Center at Dallas. The first three years are in residence at The University of Texas at Arlington; the senior year is primarily at UTHSCD.

This degree prepares students for careers in biochemistry and is also suitable for pre-medical and pre-dental students and for training in allied medical sciences.

<b>English:</b>	1301, 1302, and six hours of literature.
<b>Foreign Language:</b>	GERM 1441 and 1442, or RUSS 1451 and 1452, or FREN 1441 and 1442, or SPAN 1441 and 1442.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>* Mathematics:</b>	1325, 1326, 2325, and 2326.
<b>Physics:</b>	1443, 1444.
<b>Electives:</b>	Nine hours outside engineering, mathematics, and science. Courses in psychology may be used to satisfy this requirement.
<b>Chemistry:</b>	1284, 1301, 1302, 2181, 2182, 2321, 2322, 2451, 3181, 3182, 3321, 3322, 4242, 4311, 4312, 4461.
<b>Biology:</b>	1447, 1448, 2451, 3443, and 3312 or 3315.
<b>Biochemistry:</b>	Three courses selected from 381 (Enzymology), 382 (Intermediary Metabolism), 386 (Biochemical Genetics), 391 (Physical Biochemistry), and 394 (Biological Oxidations).
<b>Electives:</b>	Sufficient to complete total hours required for the degree.
<b>Total:</b>	134 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

**\*If the student is not qualified to take MATH 1325 when he/she enters, he/she must complete the pre-requisites for the course. This may add three to six hours in additional course work to the total required for the degree.**

#### **Suggested Course Sequence:**

##### **FRESHMAN YEAR**

**First Semester:** MATH 1325; CHEM 1301; BIOL 1447; PHYS 1443; Physical Education or Military Science or Marching Band — Total Credit 15 hours.

**Second Semester:** ENGL 1301; MATH 1326; CHEM 1284; CHEM 1302; BIOL 1448; PHYS 1444 — Total Credit 19 hours.

##### **SUMMER SESSION**

MATH 2325; ENGL 1302 — Total Credit 6 hours

##### **SOPHOMORE YEAR**

**First Semester:** English (literature), 3 hours; CHEM 2181; CHEM 2321; CHEM 2451; CHEM 3181; CHEM 3321; POLS 2311 — Total Credit 18 hours.

**Second Semester:** HIST 1311; CHEM 2182; CHEM 2322; CHEM 3182; CHEM 3322; BIOL 2451; Physical Education or Military Science — Total Credit 16 or 17 hours.

##### **JUNIOR YEAR**

**First Semester:** English (literature or report writing), 3 hours; CHEM 4311; BIOL 3443; HIST 1312; Physical Education or Military Science or Marching Band — Total Credit 14 hours.

**Second Semester:** CHEM 4312; CHEM 4242; BIOL 3312; POLS 2312; Electives, 3 hours; Physical Education or Military Science — Total Credit 15 hours.

##### **SENIOR YEAR**

**First Semester:** CHEM 4461; \*Biochemistry, 3 hours; \*\*Electives, 7 hours; GERM 1441, RUSS 1451, FREN 1441 or SPAN 1441, 4 hours — Total Credit 18 hours.

**Second Semester:** \*Biochemistry, 6 hours; \*\*Electives, 7 hours; GERM 1442, RUSS 1452, FREN 1442 or SPAN 1442, 4 hours — Total Credit 17 hours.

**\*To be taken at University of Texas Health Science Center at Dallas.**

**\*\*To be taken at University of Texas at Arlington or University of Texas Health Science Center at Dallas. Suggested electives include 4101, 4380.**



## REQUIREMENTS FOR COMBINED BS-MA PROGRAM IN CHEMISTRY

<b>English:</b>	1301, 1302, six hours of literature, or three hours of literature and ENGL 2334.
<b>Foreign Language:</b>	GERM 1441, 1442 and 2315 or RUSS 1451, 1452 and 2321, or FREN 1441, 1442 and 2315, or SPAN 1441, 1442 and 2313.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>*Mathematics:</b>	1325, 1326, 2325, 2326, 3318.
<b>Other Science:</b>	Biology or geology, six to eight hours in one subject; PHYS 1443, 1444, and either 3313 or three additional hours above the sophomore level.
<b>Electives:</b>	Nine hours outside engineering, mathematics, and the sciences. Courses in psychology may be used to satisfy this requirement.
<b>Electives:</b>	Sufficient number of hours to complete the total hours required for a degree.
<b>Major:</b>	CHEM 1284, 1301, 1302, 2181, 2182, 2321, 2322, 2451, 3181, 3182, 3321, 3322, 4101, 4216, 4315, 4346, and 4461; a minimum of three hours from 4301, 4311, 4321 and 4331; 4380 (six hours); a minimum of 18 hours in graduate-level courses listed in the Graduate Catalog including 12 hours from 5301, 5305, 5311, 5315, and 5321; six hours of thesis; six hours of electives which may be senior or graduate division courses in chemistry or in another science or engineering selected by the candidate with the approval of the graduate advisor.
<b>Minor:</b>	18 hours in a single field; or 24 hours combination of any two fields in undergraduate-level courses. Six hours must be advanced.
<b>Total:</b>	161 hours including a minimum of 36 hours of 3000 and 4000 level courses counted as undergraduate credit, and physical education or military science or marching band as required.

**\*If the student is not qualified to take MATH 1325 when he/she enters, he/she must complete the prerequisites for the course. This may add three to six hours to the total required for the degree.**

### ***Suggested Course Sequence:***

#### FRESHMAN YEAR

**First Semester:** ENGL 1301; MATH 1325; BIOL 1447 or GEOL 1345; CHEM 1301; HIST 1311; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 hours.

**Second Semester:** ENGL 1302; MATH 1326; BIOL 1448 or GEOL 1346; CHEM 1284; CHEM 1302; HIST 1312; Physical Education or Military Science — Total Credit 18 or 19 hours.

#### SOPHOMORE YEAR

**First Semester:** English (literature), 3 hours; MATH 2325; PHYS 1443; CHEM 2181; CHEM 2321; CHEM 2451 — Total Credit 18 or 19 hours.

**Second Semester:** English (report writing or literature), 3 hours; MATH 2326; PHYS 1444; CHEM 2182; CHEM 2322; Elective, 3 hours; Physical Education or Military Science — Total Credit 18 or 19 hours.

#### JUNIOR YEAR

**First Semester:** POLS 2311; CHEM 3181; CHEM 3321; GERM 1441, RUSS 1451, FREN 1441 or SPAN 1441; MATH 3318; Physics, 3 or 4 hours — Total Credit 17 or 18 hours.

**Second Semester:** POLS 2312; CHEM 3182; CHEM 3322; CHEM 4346; GERM 1442, RUSS 1452, FREN 1442 or SPAN 1442; Elective, 3 hours; select thesis advisor; Physical Education or Military Science — Total Credit 18 hours.

#### SUMMER

**First Term:** CHEM 4380 — Total Credit 3 hours.

**Second Term:** CHEM 4380 — Total Credit 3 hours.

## CHEMISTRY

### SENIOR YEAR\*

**First Semester:** CHEM 4315; CHEM 4461; CHEM 4101; GERM 2315, RUSS 2321, FREN 2315 or SPAN 2313; Electives, 6 hours — Total Credit 17 hours.

**Second Semester:** CHEM 4216; Chemistry, 3 hours chosen from 4301, 4311, 4321 and 4331; Chemistry, 6 hours chosen from 5301, 5305, 5311, 5315, and 5321; Elective, 2 hours — Total Credit 13 hours.

### SUMMER

Chemistry, graduate level, 3 hours — Total Credit 3 hours.

### GRADUATE YEAR

**First Semester:** Chemistry, 6 hours chosen from 5301, 5305, 5311, 5315, and 5321; Graduate Elective, 3 hours — Total Credit 9 hours.

**Second Semester:** Graduate-level Electives, 6 hours — Total Credit 6 hours.

### SUMMER

Chemistry, thesis, 6 hours — Total Credit 6 hours.

**\*Students progressing satisfactorily will be admitted to the Graduate School at the end of the senior year upon fulfilling admission requirements listed in the Graduate Catalog. Note that six hours of undergraduate credit will have to be reserved for graduate credit.**

## TEACHER CERTIFICATION

### ELEMENTARY CERTIFICATION

Elementary certification in chemistry is possible. Ask the departmental chairman for complete information.

### SECONDARY CERTIFICATION

Chemistry majors who desire certification for teaching at the secondary level must fulfill the following education requirements: **Total 18 hours —**

EDUC 3310, 4313, 4314.

Three elective hours selected from EDUC 3301, 3302, 3305, 3320, 4306, 4320, 4324, 4326, 4328, 4391, 4392. Six hours of student teaching. EDUC 4650.

In addition such students must fulfill requirements for a second teaching field or for certification in composite science.

Students majoring in other subjects who select chemistry as a second teaching field must take the following courses: **25 hours total —**

1301 (Students receiving advanced placement credit for freshman/sophomore level chemistry courses must take additional advanced level courses to total 25 semester hours), 1302, 1284, 2451, 3301, 3450, 3305, plus three additional hours of advanced chemistry for which prerequisites have been met.

Students majoring in chemistry or in other subjects who select physical science as a second teaching field must satisfy the following requirements:

#### **24 semester hours from: A and B, plus either C or D.**

A. Six semester hours of chemistry: 1301 and 1302.

B. Six semester hours of physics: 1341 and 1342, or 1441 and 1442, or 1443 and 1444.

C. 2 semester hours from the following:

Six semester hours laboratory courses in physical science (Currently UTA does not offer courses specifically designated as physical science. Such courses are offered at neighboring institutions, and credit for these courses will be honored in the certification program), and six semester hours from the following: CHEM 3450, 2181, 2182, 2321, 2322, 3305, or PHYS 3313, 3445, 3446, or other approved course(s).

D. 12 semester hours from the following: CHEM 3450, 2181, 2182, 2321, 2322, 3305, or PHYS 3313, 3445, 3446, or other approved advanced course(s) in chemistry, physics or physical science.

**NOTE:** All candidates for secondary certification except those in composite science must fulfill requirements for two teaching fields. Chemistry and physical sciences *may* be selected as the two fields.

#### **COMPOSITE SCIENCE (57 semester hours, 13 advanced):**

CHEM 1284, 1301, 1302, 2181, 2182, 2321, 2322, 2451, 3301, 4311, and at least seven hours from 3307, 3310, 4101, 4216, 4242, 4301, and 4312.

24 semester hours distributed among biology, geology, and physics as shown below plus two additional hours in these sciences:

A. BIOL 1447, 1448.

B. GEOL 1345, 1346.

C. PHYS 1441, 1442.

**CHEMISTRY FOR THE NON-SCIENCE MAJOR**

The Department of Chemistry offers a series of courses for those non-science majors who would like to satisfy their science requirements in this area or those who are interested in the topics that are offered. The courses are at the introductory level. A total of 27 credit hours are available. A combination of four credit hours of lecture courses and two credit hours of laboratory will satisfy the requirement of taking six hours of science with laboratory. The courses in this series are listed below.

CHEM 1101	Photography and Chemistry	(1-0)
CHEM 1102	Better Gardening through Chemistry	(1-0)
CHEM 1103	Our Energy Dilemma	(1-0)
CHEM 1104	Over-the-Counter Drugs	(1-0)
CHEM 1105	Food Additives	(1-0)
CHEM 1106	Winemaking and Fermentation Science	(1-0)
CHEM 1181	Preparation & Analysis of Consumer Products	(0-2)
CHEM 1182	Laboratory Aspects of Photography	(0-2)
CHEM 1183	Laboratory Practices in Fermentation	(0-2)
CHEM 1221	Chemistry for the Consumer	(2-0)
CHEM 1222	Current Environmental Crises	(2-0)
CHEM 1361	Chemistry for the Health Sciences I	(2-3)
CHEM 1362	Chemistry for the Health Science II	(2-3)
CHEM 1461	Introductory Forensic Chemistry	(3-3)
CHEM 1462	Introductory Forensic Chemistry	(3-3)

**HONORS PROGRAM IN CHEMISTRY**

The Department of Chemistry offers an Honors Program for students who qualify. To qualify, the student must have completed 30 hours in residence at UTA, including 10 hours in chemistry, with a grade point average of at least 3.5. The honors student will complete the requirements for a B.A. or B.S. degree in chemistry or a B.S. degree in biochemistry, plus CHEM 4381.

**CHEMISTRY (CHEM)**

*Chairman: Professor Timmons*

*Professors Baker, Francis, Girardot, Martin, Pomerantz, Schelly, Ternay*

*Adjunct Professor Strom*

*Associate Professors Armstrong, Bellion, Benham, Brown, Cogdell, Marynick, Willoughby*

*Adjunct Associate Professor Smith*

*Assistant Professor Johnson*

*Assistant Instructor Bonar*

**1101. PHOTOGRAPHY AND CHEMISTRY** (1-0) 1 hour credit — An introduction to photographic processes. Emphasizes practical aspects of film development, film preparation, and image formation in black-and-white and color films. Part of the series "Chemistry for the Nonscience Major". Cannot be used for major credit toward a degree in chemistry.

**1102. BETTER GARDENING THROUGH CHEMISTRY** (1-0) 1 hour credit — Relates to both indoor and outdoor gardening as well as to "organic" gardening. Soil analysis and conditioning, characteristics and uses of pesticides and fungicides, analysis and uses of fertilizers, hazards of chemicals used in gardening. Part of the series "Chemistry for the Nonscience Major". Cannot be used for major credit toward a degree in chemistry.

**1103. OUR ENERGY DILEMMA** (1-0) 1 hour credit — An exploration of where we are now, what solutions are on the horizon, and how we can adapt alternative sources of energy for our future needs. Energy sources included are oil and gas, coal and related products, nuclear, solar, geothermal, hydroelectric and wind. Environmental, social political, and legal involvement in the use of these sources. Part of the series "Chemistry for the Nonscience Major". Cannot be used for major credit toward a degree in chemistry.

**1104. OVER-THE-COUNTER DRUGS** (1-0) 1 hour credit — Introduces various over-the-counter (nonprescription) items available in drug stores in the United States, i.e., pain relievers, decongestants, soaps, antimicrobial agents, antacids, and vitamins. The nature of various "active ingredients", quality control of drugs and related products, government regulation of over-the-counter drugs. Part of the series "Chemistry for the Nonscience Major". Cannot be used for major credit toward a degree in chemistry.

## CHEMISTRY

**1105. FOOD ADDITIVES** (1-0) 1 hour credit — Introduces various food additives used in the United States: artificial flavors, artificial color, sweeteners, and preservatives. Additives discussed from several perspectives, including their nature, function, and hazards, and government control of food additives, "The Truth-In-Labeling" Act and the Delaney Clause. Part of the series "Chemistry for the Nonscience Major". Cannot be used for major credit toward a degree in chemistry.

**1106. WINEMAKING AND FERMENTATION SCIENCE** (1-0) 1 hour credit — The chemistry of enology ("wine studies"). The chemistry of the grape and of fermentation processes; grape solids, acidity, pigments, flavor compounds, and pectins; the effect of these variables on wine quality. Part of the series "Chemistry for the Nonscience Major". Cannot be used for major credit toward a degree in chemistry.

**1181. PREPARATION AND ANALYSIS OF CONSUMER-PRODUCTS** (0-2) 1 hour credit — The formulation and analysis of consumer products. The substances examined will be those where a knowledge of chemistry will help economic decision-making by the consumer. Several "over-the-counter" medications will be analyzed to test advertising claims. Part of the series "Chemistry for the Nonscience Major". Cannot be used for major credit toward a degree in chemistry. Prerequisite: CHEM 1221, CHEM 1300, or concurrent enrollment. **\$2 lab fee.**

**1182. LABORATORY ASPECTS OF PHOTOGRAPHY** (0-2) 1 hour credit — Designed to help the student understand the nature of black-and-white and color film, the nature of photographic solutions, and the variables affecting film development. The student is expected to develop skills in the following areas: darkroom techniques, film developing, slide making, and special effects. Part of the series "Chemistry for the Nonscience Major". Cannot be used for major credit toward a degree in chemistry. Estimated cost of materials \$20. Prerequisite: CHEM 1101, CHEM 1300, or concurrent enrollment. **\$2 lab fee.**

**1183. LABORATORY PRACTICES IN FERMENTATION** (0-2) 1 hour credit — The dependence of the wine-making process upon acidity, sugar content, and types of enzymes systems. Analytical methods used in wine making and evaluation. Part of the series "Chemistry for the Nonscience Major". Cannot be used for major credit toward a degree in chemistry. Estimated cost of materials \$5. Prerequisite: CHEM 1106 or concurrent enrollment. **\$2 lab fee.**

**1221. CHEMISTRY FOR THE CONSUMER** (2-0) 2 hours credit — Designed to improve the student's consumer awareness by describing the nature and action of a variety of consumer-oriented products including synthetic fibers, plastics, paints, adhesives, food products, pharmaceuticals, personal care products. Discussions will cover product efficiency, methods of manufacture, current consumer legislation, and consumer protection agencies. Part of the "Chemistry for the Nonscience Major" series. Cannot be used for major credit toward a degree in chemistry.

**1222. CURRENT ENVIRONMENTAL CRISES** (2-0) 2 hours credit — The scientific, economic and political factors involved in resolving current environmental problems. Students are encouraged to submit environment-oriented topics from current newspapers and magazines to serve as focal points in classroom discussion. Provides background information of use in making judgments concerning technological aspects of everyday life. Part of the series "Chemistry for the Nonscience Major". Cannot be used for major credit toward a degree in chemistry.

**1284. GENERAL CHEMISTRY LABORATORY** (1-4) 2 hours credit — Experiments related to fundamental principles covered in CHEM 1301 and 1302. Volumetric and gravimetric determinations and qualitative analysis. Concurrent registration in CHEM 1284 and 1302 is advisable. Prerequisite: CHEM 1302 or concurrent registration. **\$4 lab fee.**

**1300. INTRODUCTORY CHEMICAL PRINCIPLES** (3-0) 3 hours credit — Provides a background in fundamental chemical mathematics, in writing and understanding chemical formulas and equations, and in the application of scientific laws to the behavior of matter. This course is designed for the student with little or no previous chemical training who intends to take the CHEM 1301/1302 sequence at a later date. CHEM 1300 cannot replace CHEM 1301 or 1302 for major credit toward a degree in chemistry. Prerequisite: MATH 1302 or equivalent.

**1301. GENERAL CHEMISTRY** (3-0) 3 hours credit — The fundamentals of atomic structure, chemical bonding, the periodic table, nomenclature, kinetic theory, gas laws, chemical equations, and solutions. Students who have not had high school chemistry are advised to take CHEM 1300 first. Prerequisite: MATH 1302 or equivalent. Students whose degree plan requires CHEM 1302 but not CHEM 1301 must take the Advanced Placement Exam if they wish to by-pass CHEM 1301 (see below).

**CHEMISTRY COUNSELING EXAM** — Students who wish to determine which course in the CHEM 1300 or 1301 series is appropriate for them should take the chemistry counseling exam.

This examination is administered during the summer for students who preregister for the Fall Semester. The examination is also given on the day preceding registration and on the first day of registration of any semester at 1 p.m., Science Hall, Room 202.

**CHEMISTRY PLACEMENT EXAM** — All students who have credit for at least one year of high school chemistry and whose degree plan requires CHEM 1302 but not CHEM

**1301 must take the chemistry placement exam if they wish to by-pass CHEM 1301. Students who pass it must register for CHEM 1302 within one year. Credit is not received for CHEM 1301 if the placement exam is passed.**

**Information concerning the examination will be furnished if a stamped, self-addressed envelope is included with the request to the Department of Chemistry.**

**This examination is administered during the summer for students who preregister for the Fall semester. The examination is also given on the day preceding registration and on the first day of registration of any semester at 1 p.m., Science Hall, Room 202.**

**ADVANCED STANDING EXAM — Chemistry majors must receive credit for CHEM 1301, either by successful completion of this course or by passing the appropriate Advanced Standing Exam in chemistry.**

**1302. GENERAL CHEMISTRY (3-0) 3 hours credit —** Advanced atomic structure and bonding concepts, acid-base theory, kinetics and equilibria, thermodynamics, electrochemistry, the chemistry of some elements. Prerequisite: CHEM 1301 or the equivalent, which may include satisfactory grade on the advanced placement examination. Only one of CHEM 1302 or 1462 may be counted for credit.

**1361. CHEMISTRY FOR THE HEALTH SCIENCES I (2-3) 3 hours credit —** Designed for the student interested in chemistry applied to life processes. Covers principles of general and beginning organic chemistry with emphasis on application to the human body. Blood chemistry and pH, diagnostic and therapeutic radiation, electrolytes, and fluid transports. Laboratory experiments parallel the discussion. Formerly CHEM 1451. CHEM 1361 cannot count for major credit toward a degree in chemistry. Prerequisite: MATH 1302 or equivalent. **\$2 lab fee.**

**1362. CHEMISTRY FOR THE HEALTH SCIENCES II (2-3) 3 hours credit —** A sequel to CHEM 1361, continuing the discussion of organic chemistry with emphasis on biochemistry. Includes the function and components of proteins, carbohydrates, lipids, enzymes, metabolic energy, and the chemistry of DNA and RNA. Laboratory experiments in vitro serve to emphasize parallel functions in vivo. CHEM 1362 cannot count for major credit toward a degree in chemistry. Prerequisite: CHEM 1361 or equivalent. **\$2 lab fee.**

**1461. INTRODUCTORY FORENSIC CHEMISTRY (3-3) 4 hours credit —** The basic principles of chemistry, with emphasis on the descriptive chemistry of substances of special interest in forensic investigation. The properties of substances which aid in their characterization and identification are studied in the laboratory. CHEM 1461 cannot count for major credit toward a degree in chemistry. **\$2 lab fee.**

**1462. INTRODUCTORY FORENSIC CHEMISTRY (3-3) 4 hours credit —** A continuation of CHEM 1461. Elementary organic and biochemistry, with emphasis on materials pertinent to forensic investigation, such as physiological fluids, drugs, synthetic fibers and plastics. Prerequisite: CHEM 1461. CHEM 1462 cannot count for major credit toward a degree in chemistry. **\$2 lab fee.**

**2180. RESEARCH IN CHEMISTRY (0-4) 1 hour credit —** Research for undergraduate students supervised by faculty of the department. May be repeated. Graded pass-fail only. Prerequisite: written permission of the instructor. Students may take a maximum of 12 hours of credit on a pass-fail basis.

**2181. ORGANIC CHEMISTRY LABORATORY (0-4) 1 hour credit —** Experiments which illustrate laboratory techniques, theoretical concepts, and synthesis. Prerequisites: CHEM 1284 and 1302. Corequisite: CHEM 2321. This course was formerly the laboratory part of 2453. Credit cannot be given for both CHEM 2181 and 2453. **\$8 lab fee.**

**2182. ORGANIC CHEMISTRY LABORATORY (0-4) 1 hour credit —** Experiments which include syntheses, characterization of unknown substances, and use of the chemical literature. Prerequisite: CHEM 2181. Corequisite: CHEM 2322. This course was formerly the laboratory part of 2454. Credit cannot be given for both CHEM 2182 and 2454. **\$8 lab fee.**

**2321. ORGANIC CHEMISTRY (3-0) 3 hours credit —** The fundamentals of molecular structure, stereochemistry, and the reactions of aliphatic hydrocarbons, alcohols and ethers. Electronic theory, synthetic methods and mechanisms. Prerequisite: CHEM 1302. This course was formerly the lecture portion of 2453. Credit cannot be given for both 2321 and 2453.

**2322. ORGANIC CHEMISTRY (3-0) 3 hours credit —** Organic spectroscopic analysis. The chemistry of aromatic hydrocarbons, aldehydes, ketones, carboxylic acids and derivatives, amines, amino acid, carbohydrates and other functional groups. Mechanisms and synthesis. Prerequisite: CHEM 2321. This course was formerly the lecture portion of 2454. Credit cannot be given for both 2322 and 2454.

**2380. UNDERGRADUATE RESEARCH (0-9) 3 hours credit —** Research in chemistry supervised by a faculty member of the department. May be repeated. Graded pass-fail only. Prerequisite: written permission of the instructor. Students may take a maximum of 12 hours credit on a pass-fail basis.

## CHEMISTRY

**2451. QUANTITATIVE ANALYSIS (2-8)** 4 hours credit — A study of the more important general methods of quantitative chemical analysis including gravimetric determinations and the theory and practice of volumetric analysis. Simple instrumental methods of analysis. Prerequisite: CHEM 1302 and 1284 or equivalent, and three hours of college algebra or equivalent. **\$5 lab fee.**

**3181. PHYSICAL CHEMISTRY LABORATORY (0-4)** 1 hour credit — The physical and thermodynamic properties of substances, experimentally determined. Prerequisites: CHEM 2451 and credit for or registration in CHEM 3321. **\$8 lab fee.**

**3182. PHYSICAL CHEMISTRY LABORATORY (0-4)** 1 hour credit — Experiments in kinetics, equilibria, spectroscopy, and electrochemistry. Modern instrumental techniques. Prerequisites: CHEM 3181 and credit for or registration in CHEM 3322. **\$8 lab fee.**

**3301. INTRODUCTION TO PHYSICAL CHEMISTRY (3-0)** 3 hours credit — Solutions, equilibria, thermodynamics, kinetics, electrochemistry, and colloids. Required for BA chemistry majors, and recommended for pre-medical and pre-dental students and for students desiring chemistry as a second teaching field. Prerequisites: CHEM 1302 and 1284. Credit cannot be granted for both CHEM 3301 and 3321.

**Science 3301 satisfies the science requirement in Bachelor of Arts degree programs. See Science courses listed on the page preceding the Department of Biology material.**

**3305. INTRODUCTION TO BIOLOGICAL CHEMISTRY (3-0)** 3 hours credit — Biologically important compounds and cellular reactions and their relevance to health and nutrition. Prerequisite: CHEM 3450 or 2454. For students in pre-medical technology, bioengineering and biology options except those for which CHEM 4311 is required. Both CHEM 3305 and 4311 cannot be counted for credit.

**3307. INTRODUCTION TO POLYMER CHEMISTRY (3-0)** 3 hours credit — The chemistry and technology of polymeric systems. The chemistry of natural systems such as proteins as well as the synthesis of fibers, films, plastics, and elastomers. Discussion of the characterization of polymers by modern techniques using instrumental analysis is followed by a summary of end-use and processing techniques. Prerequisite: CHEM 2321, 2453, or 3450.

**3310. AIR POLLUTION CHEMISTRY (3-0)** 3 hours credit — Air pollutants and their general chemical and ecological effects. Measuring, monitoring, and analysis techniques and pollution sources, control, and economics. Prerequisites: CHEM 1352 or 1302 and 1284 or equivalent.

**3311. CHEMISTRY OF THE ENVIRONMENT — AIR, WATER, SOLIDS (3-0)** 3 hours credit — The chemical and physical fate of air, water, and solid waste pollutants, as well as mechanisms of interactions which relate the three. Evaluation of pollutant impact through modeling and mechanism studies and visits to pollutant sources, control agencies and disposal sites. Prerequisite: CHEM 1302 or permission of the instructor.

**3321. PHYSICAL CHEMISTRY (3-0)** 3 hours credit — Solids, liquids and gases, thermochemistry, thermodynamics, solutions, equilibria, and electrochemistry. Prerequisites: CHEM 1302 and 1284, eight hours of physics and MATH 2325 and concurrent enrollment in MATH 2326.

**3322. PHYSICAL CHEMISTRY (3-0)** 3 hours credit — Kinetics, quantum theory and molecular structure, and statistical thermodynamics. Prerequisite: CHEM 3321.

**3450. INTRODUCTION TO ORGANIC CHEMISTRY (3-4)** 4 hours credit — A terminal course in organic chemistry, emphasizing the properties of biologically significant molecules. Includes amino acids, carbohydrates, steroids, macromolecules, and chemotherapeutic agents as well as the chemistry of common functional groups. Prerequisites: CHEM 1362 or 1302 and 1284 or the equivalent. Only one of CHEM 2321, 2453, 3450, and 3453 can be counted for credit. **\$8 lab fee.**

**3463. FORENSIC ANALYSIS (3-3)** 4 hours credit — Introductory analytical chemical methods oriented toward forensic investigation including chromatography, spectroscopy, electrical, optical, and radiation methods. Advanced forensic photography and applications of computers to forensic work will be discussed. Prerequisite: CHEM 1462. **\$5 lab fee.**

**4101. SEMINAR IN CHEMISTRY (1-0)** 1 hour credit — Oral and written communication of chemical information. Seminars will be presented by students on topics from the current chemical literature. A term paper is required. The use of the library for researching the chemical literature will be emphasized. May be repeated for a total of two semester hours of credit. Prerequisite: senior standing in chemistry.

**4216. PROPERTIES AND REACTIONS OF INORGANIC SYSTEMS (2-0)** 2 hours credit — Chemistry of the elements, correlations of use in predicting chemical behavior, physical and chemical methods of structure determination. Prerequisite: CHEM 4315.

**4242. LABORATORY TECHNIQUES IN BIOCHEMISTRY (1-3)** 2 hours credit — Designed to introduce the student to biochemical laboratory methods; a practical approach to the properties of carbohydrates, proteins, enzymes, and nucleotides. Prerequisite: CHEM 4311. **\$8 lab fee.**

**4301. ANALYTICAL CHEMISTRY (3-0)** 3 hours credit — Sampling and separation techniques including decomposition and dissolution and physical and chemical methods of separation. Prerequisite: CHEM 3301 or 3322.

**4303. INDUSTRIAL CHEMISTRY** (3-0) 3 hours credit — Application of chemical principles to industrial practice via a survey of the basic concepts of unit operations and unit processes in terms of familiar chemical and physical changes. Prerequisites: CHEM 2451 and CHEM 2321 or CHEM 2453, or permission of the instructor.

**4311. GENERAL BIOCHEMISTRY** (3-0) 3 hours credit — The chemistry of the sugars, amino acids, proteins, and nucleic acids, followed by an introduction to enzyme chemistry. The major metabolic pathways of the cell, glycolysis, TCA cycle and pentose phosphate pathway. Prerequisites: CHEM 2322, 2454 or 3454. Offered each year in the fall and usually in a summer session.

**4312. GENERAL BIOCHEMISTRY** (3-0) 3 hours credit — A continuation of CHEM 4311. The breakdown and biosynthesis of fats and the synthesis of carbohydrate, including photosynthesis. Metabolic utilization of proteins and amino acids together with an introduction to protein synthesis. Prerequisite: CHEM 4311 or equivalent. Offered each year in the spring semester only.

**4315. PHYSICAL INORGANIC CHEMISTRY** (3-0) 3 hours credit — Electronic structure, bonding, acid-base theory, structure of ionic and molecular compounds, equilibria, reaction mechanisms, stabilization of oxidation states, and periodicity of chemical behavior. Prerequisite: CHEM 3322.

**4321. PHYSICAL ORGANIC CHEMISTRY** (3-0) 3 hours credit — Acidity functions, general and specific acid and base catalysis, kinetic methods, linear free energy relationships, and solvent effects as they apply to organic reaction mechanisms. Prerequisite: CHEM 2322 or 2454 or 3454. Corequisite: CHEM 3322.

**4331. PHYSICAL CHEMISTRY** (3-0) 3 hours credit — Selected topics in physical chemistry including quantum theory of atoms and molecules, statistical mechanics, and absolute reaction rate theory. Numerical methods as well as theoretical considerations. Prerequisite: CHEM 3322 or permission of the instructor.

**4346. ADVANCED SYNTHETIC METHODS** (1-6) 3 hours credit — Methods and techniques for the synthesis and characterization of organic, inorganic, and organometallic compounds. Prerequisite: CHEM 2182. **\$8 lab fee.**

**4380. UNDERGRADUATE RESEARCH** (0-9) 3 hours credit — Research under the direction of a member of the department. May be repeated once. Prerequisite: written permission of the instructor and a minimum grade point average of 2.5. **\$8 lab fee.**

**4381. HONORS RESEARCH** (0-9) 3 hours credit — Research in chemistry under the direction of a member of the department, resulting in a written honors thesis. Prerequisites: CHEM 3322 and admission to the department's honors program.

**4191, 4291, 4391. READINGS IN CHEMISTRY** (Variable credit from 1 to 3 hours as arranged) — May be repeated for a maximum of six hours credit. Topics arranged on an individual basis. Performance may be assessed by oral exam, written test, or review paper. Prerequisite: permission of departmental chairman.

**4461. INSTRUMENTAL ANALYSIS** (2-8) 4 hours credit — The principles involved in the operation of modern analytical instruments and the laboratory use of such instruments. Prerequisites: CHEM 3182 and 3322. **\$8 lab fee.**

**4470. CHEMISTRY FOR SCIENCE TEACHERS** (3-3) 4 hours credit — Modern chemical concepts. Designed to improve the professional competence of science teachers. Open to those who have a minimum of six hours of general chemistry or the equivalent and three hours of education. Not open to chemistry majors. **\$8 lab fee.**

# General Studies: INTERDISCIPLINARY PROGRAMS

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Students with interdisciplinary interests and unique academic and vocational goals may choose the Bachelor of General Studies Program. In the BGS Program, the student can select various course offerings from existing departmental programs in any college in the University to create an individualized degree plan relevant to his/her goals. Applications for admission to the BGS Program are available in the Office of the Dean, College of Liberal Arts. The student, in filing this application, will describe academic and vocational interests and, with the approval of the Program Director and departmental advisors, develop a degree plan. The approved degree plan, the transcript, and the diploma will carry the designation Bachelor of General Studies.

The BGS Program includes those requirements established for the Bachelor of Arts Degree, an area of concentration, and elective courses.

## REQUIREMENTS FOR A BACHELOR OF GENERAL STUDIES DEGREE

<b>English:</b>	1301, 1302, and six hours of literature.
<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent, 2314.
<b>History:</b>	1311, 1312, or six hours of other U.S. history or three hours of U.S. and three hours of Texas history.
<b>Mathematics:</b>	Six hours.
<b>Political Science:</b>	2311, 2312.
<b>Science:</b>	12 hours, six of which must be in the same science with lab.
<b>Electives:</b>	Sufficient hours to complete the total required for the degree.
<b>AREA OF CONCENTRATION:</b>	<p>The area of concentration consists of courses selected by the student in consultation with the advisor(s) which focus on the student's unique academic and/or vocational interests.</p> <p>A minimum of 36 hours is required for the area of concentration, of which at least 18 must be advanced; no more than 18 hours, in addition to the General Requirements, may be selected from any one discipline.</p>
<b>Total:</b>	128 hours, at least 36 of which must be advanced, plus physical education, military science, or marching band as required.



# The Department of GEOLOGY

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The Department of Geology offers programs of study leading to the:

1. Bachelor of Science in Geology — intended for those who wish either to enter the profession on graduation or to pursue graduate studies in geology.
2. Bachelor of Arts in Geology — intended for those who desire a strong cultural background in geology and may not intend to enter the profession or graduate school.

Secondary teaching certification programs in earth science and life-earth middle school programs without a degree in geology are also offered and supervised by the department, and certification in composite science can be coupled with the Bachelor of Arts in Geology.

## REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN GEOLOGY

<b>English:</b>	1301, 1302, or equivalent, and six hours in literature courses, or three hours in a literature course and three hours in a report writing course.
<b>Foreign Language:</b>	1441, 1442, or equivalent, and a three-hour sophomore course.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Mathematics:</b>	1325, 1326, 2325.
<b>Electives:</b>	Nine hours outside mathematics, engineering, and science, three hours of which must be advanced. Courses in psychology may be used to fulfill this requirement.
<b>Other Electives:</b>	Sufficient to give the total number of hours required for this degree.
<b>Science Other Than Geology:</b>	CHEM 1301* or equivalent and 1302, 1284; PHYS 1441 or 1443 and PHYS 1442 or 1444; and BIOL 1447 and 1448. For other science requirements see Minor.
<b>Major:</b>	41 to 43 hours including 1445 and 1446 (1345 and 1346 accepted), 2445, 2446, 3441, 3442, 3443, 3687, and nine hours of 4000 courses. NOTE: Introductory geology courses (1445, 1446 and 1345, 1346) may be repeated one time only and have grade credited to GPA for B.S. in geology. Courses listed which may not be used to satisfy requirements for a B.S. degree in geology may be taken but the grade will not be credited to the GPA in geology.
<b>Minor:</b>	18 hours in biology, chemistry, physics, mathematics, (beginning with 1325), civil engineering (beginning with 2311) or computer science (beginning with 2306), or 24 hours in a combination of any two of these. Six hours of minor work must be in 3000 or 4000 courses, approved by the departmental advisor.
<b>Total Hours:</b>	130 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

\*Students who have credit for one or more years of high school chemistry must take the chemistry placement examination prior to registration if they wish to by-pass CHEM 1301.

### **Suggested Course Sequence:**

#### **FRESHMAN YEAR**

**First Semester:** ENGL 1301; MATH 1325; CHEM 1301; GEOL 1445; HIST 1311; Physical Education or Military Science or Marching Band — Total Credit 17 hours.

**Second Semester:** ENGL 1302; MATH 1326; CHEM 1302; CHEM 1284; GEOL 1446; HIST 1312; Physical Education or Military Science — Total Credit 19 hours.

## **GEOLOGY**

### **SOPHOMORE YEAR**

**First Semester:** English (literature), 3 hours; MATH 2325; BIOL 1447; POLS 2311; GEOL 2445; Physical Education or Military Science or Marching Band — Total Credit 18 or 19 hours.

**Second Semester:** English (literature or report writing), 3 hours; BIOL 1448; POLS 2312; GEOL 2446; Physical Education or Military Science — Total Credit 16 or 17 hours.

### **JUNIOR YEAR**

**First Semester:** Physics, 4 hours; GEOL 3441; Foreign Language 1441; Option Minor, 3 or 4 hours — Total Credit 15 or 16 hours.

**Second Semester:** GEOL 3442, 3443; Foreign Language 1442; Physics, 4 hours; Elective, 3 hours — Total Credit 19 hours.

### **SUMMER SESSION**

GEOL 3687 (Summer Field Course), 6 hours — Total Credit 6 hours.

### **SENIOR YEAR**

**First Semester:** Minor (advanced science, mathematics, civil engineering or computer science), 3 hours; Geology elective, 3 hours; Foreign language, 3 hours; Elective, 3 hours; Elective (advanced non-science or mathematics), 3 hours — Total Credit 15 hours.

**Second Semester:** Minor (advanced science, mathematics, civil engineering or computer science), 3 hours; Geology elective, 6 hours; Electives, 3-9 hours — Total Credit 12-18 hours.

## **REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN GEOLOGY**

<b>English:</b>	1301, 1302, and six hours of literature.
<b>Foreign Language:</b>	1441, 1442, and six additional hours at the sophomore level or above.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Mathematics:</b>	1324, 3310.
<b>Electives:</b>	14 hours, of which nine must be outside science, engineering, and mathematics. Courses in psychology may be used to satisfy this requirement.
<b>Major:</b>	GEOL 1345, 1346, 2445, 2446, 3441, 3442, 3443, and six advanced hours of geology.
<b>Minor:</b>	18 hours, of which six must be advanced, in a single field.
<b>Science Other Than Geology:</b>	CHEM 1301*; BIOL 1447, 1448; PHYS 1341, 1342.
<b>Total:</b>	124 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

\*Students will take CHEM 1302 if they by-pass CHEM 1301 by placement.

### ***Suggested Course Sequence:***

#### **FRESHMAN YEAR**

**First Semester:** ENGL 1301; MATH 1324; CHEM 1301; GEOL 1345; HIST 1311; Physical Education or Military Science or Marching Band — Total Credit 16 hours.

**Second Semester:** ENGL 1302; GEOL 1346; Electives, 6 hours; HIST 1312; Physical Education or Military Science — Total Credit 16 hours.

#### **SOPHOMORE YEAR**

**First Semester:** English (literature), 3 hours; Foreign Language 1441; BIOL 1447; GEOL 2445; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 hours.

**Second Semester:** English (literature), 3 hours; Foreign Language 1442; POLS 2311; BIOL 1448; GEOL 2446; Physical Education or Military Science — Total Credit 18 or 19 hours.

**JUNIOR YEAR**

**First Semester:** POLS 2312; MATH 3310; GEOL 3441; Foreign Language, 3 hours; PHYS 1341 — Total Credit 16 hours.

**Second Semester:** GEOL 3442, 3443; Minor, 3 hours; Foreign Language, 3 hours; PHYS 1342 — Total Credit 17 hours.

**SUMMER SESSION (Elective)**

GEOL 3687 (Summer Field Course), 6 hours — Total Credit 6 hours

**SENIOR YEAR**

**First Semester:** Minor, 3 hours; Geology electives, 3 hours; Elective (advanced), 6 hours; Electives, 6 hours — Total Credit 18 hours.

**Second Semester:** Minor (advanced), 6 hours; Geology electives, 3 hours; Elective (advanced), 3 hours; Elective or Minor, 3 hours — Total Credit 15 hours.

**TEACHER CERTIFICATION—ELEMENTARY**

Elementary certification in earth science is possible. Ask the chairman of the Department of Geology for complete information.

**TEACHER CERTIFICATION—SECONDARY**

Students who desire certification at the secondary level in earth science, or life-earth middle school, or composite science must fulfill the requirements of these teaching fields as shown below, must take the required hours in education as shown in the Education section of the catalog, and must fulfill the requirements for a second teaching field (not required in composite science).

**EARTH SCIENCE (27 semester hours):**

GEOL \*1345, \*1346, PHYS \*1345, GEOL \*2445, \*2446, \*\*GEOL 3301, \*\*\*CE 3331, GEOL \*3441 or \*3443.

**LIFE-EARTH MIDDLE SCHOOL (minimum of 26 semester hours):**

Eight semester hours of laboratory courses in general biology:

BIOL \*1447, \*1448 plus six semester hours of laboratory courses in general earth science: GEOL \*1345, \*1346.

12 semester hours from the following:

six semester hours of laboratory courses in biology or earth science, or a combination of these, and six semester hours of advanced-level courses in biology or earth science or a combination of these.

A. BIOL 2345, 2450, plus six semester hours from: 3315, 3344, 3345, 3348, 3355, 3443, 3446, 3455, 4338, 4346, 4348, 4450, 4460, 4680. Note: All of the above are lab courses.

B. Earth Science: GEOL 2445, 2446, plus six semester hours from: \*\*3301, 3302, 3304, 3305, 3306, \*3441, \*3442, \*3443, 4315, \*4345.

**COMPOSITE SCIENCE (56 semester hours, 18 advanced):**

GEOL \*1345, \*1346, \*2445, \*2446, \*3441, \*3442, \*3443 and six additional advanced hours in geology.

24 semester hours distributed among biology, chemistry, and physics as shown below plus two to five additional hours in these sciences.

A. BIOL 1447, 1448.

B. CHEM 1301 (to be omitted upon advanced placement), 1302, and 1284.

C. PHYS 1341, 1342.

\*Indicates a laboratory course (40% to 80% of instructional time is devoted to student laboratory courses).

\*\*Students seeking certification in life-earth science should register for GEOL 3184.

\*\*\*Students seeking certification in life-earth or earth science should register for GEOL 3185.

## GEOLOGY

### GEOLOGY (GEOL)

*Chairman: Professor Smith*

*Professors Burkart, Perkins*

*Adjunct Professors Denison, Miller*

*Associate Professors Cooper, McPherson, Nestell, Reaser, Self*

*Adjunct Associate Professor Kotila*

*Assistant Professor Crick*

#### Designation of Semester in Which Courses Are Offered

To assist the student in planning his/her sequence of courses, all geology courses carry an indication as to when they are usually taught. However, the Department of Geology reserves the right to change the semester in which any course is taught in accordance with unforeseen conditions.

Designations are: F-Fall, S-Spring, SSI-First Summer Session, SSII-Second Summer Session, I-Irregular.

**1278. FIELD EXCURSIONS IN GEOLOGY** (0-8) 2 hours credit — A series of local and regional field excursions, to illustrate field relationships of various geologic phenomena. **\$2 lab fee. I.**

**1345. PRINCIPLES OF PHYSICAL GEOLOGY** (2-3) 3 hours credit — Principles and processes of physical geology and their effect upon man and his environment. Primarily for non-geology majors. **\$2 lab fee. F, S, SSI. (GEOL 1345 and 1445 cannot both be counted for credit).**

**1346. PRINCIPLES OF HISTORICAL GEOLOGY** (2-3) 3 hours credit — Origin and history of the earth, the development and evolution of life. Primarily for non-geology majors. Prerequisite: GEOL 1345 or 1445 or permission of the instructor. **\$2 lab fee. F, S, SSII. (GEOL 1346 and 1446 cannot both be counted for credit).**

**1445. PHYSICAL GEOLOGY** (3-3) 4 hours credit — For geology majors, other science majors, and civil engineering majors. An introduction to minerals, rocks, geological processes, and structural geology. **\$2 lab fee. F.**

**1446. PRINCIPLES OF HISTORICAL GEOLOGY** (3-3) 4 hours credit — For geology majors and other science majors. Origin and history of the earth and the development and evolution of life. Prerequisite: GEOL 1345 or 1445 or permission of the instructor. GEOL 1346 and 1446 cannot both be counted for credit. **\$2 lab fee. S.**

**2445. MINERALOGY** (3-4) 4 hours credit — Elementary crystallography, mineral identification, mineral occurrences, mineral usage, and an introduction to optical mineralogy. Prerequisite: CHEM 1301. **\$3 lab fee. F.**

**2446. IGNEOUS AND METAMORPHIC PETROLOGY AND PETROGRAPHY** (3-4) 4 hours credit — Hand-specimen and microscope study of igneous and metamorphic rocks. Rock origins, tectonic controls, rock description, and interpretation of rock textures and structures. Prerequisite: GEOL 2445. **\$2 lab fee. S.**

**3184. OCEANOGRAPHY LABORATORY** (0-2) 1 hour credit — Laboratory for students seeking secondary certification in life-earth or earth science programs. Prerequisites: concurrent registration in GEOL 3301 or permission of instructor. **\$2 lab fee. I.**

**3185. METEOROLOGY LABORATORY** (0-2) 1 hour credit — Laboratory for students seeking secondary certification in life-earth or earth science programs. Prerequisite: permission of instructor. **\$2 lab fee. I.**

**3301. INTRODUCTION TO OCEANOGRAPHY** (3-0) 3 hours credit — A survey of the many aspects of oceanography with special emphasis on physical oceanography and marine geology. Prerequisites: six hours of science and junior standing, or permission of the instructor. Will not count for requirements for the BS degree in geology but will count toward a BA degree. **I.**

**Science 3301 satisfies the science requirement in Bachelor of Arts degree programs. See Science courses listed on the page preceding the Department of Biology material.**

**3302. INTRODUCTION TO THE GEOLOGY OF THE UNITED STATES** (3-0) 3 hours credit — For students other than geology majors. The geologic regions of the United States. Prerequisites: six hours of science and junior standing. May not be used to satisfy any of the requirements for degrees in geology. **I.**

**3303. VOLCANOES AND VOLCANIC ERUPTIONS** (3-0) 3 hours credit — Comprehensive worldwide overview of volcanic eruptions from prehistoric to recent times. More than 20 actual case studies using original material and data. Includes necessary introductory material to volcanology and information on topics such as climatic change. Prerequisites: Six hours of science and junior standing. May not be used to satisfy any of the requirements for a degree in geology. **I.**

**3304. GEOLOGIC HAZARDS** (3-0) 3 hours credit — Various geologic hazards such as earthquakes and volcanoes and their relationship to man. Prerequisites: six hours of science and junior standing. May not be used to satisfy any of the requirements for a degree in geology. **I.**

- 3305. GEOLOGY OF TEXAS** (3-0) 3 hours credit — Designed to acquaint non-geology majors with the geology of Texas. Prerequisites: six hours of science and junior standing. May not be used to satisfy any of the requirements for a degree in geology. **I.**
- 3306. GEOLOGIC TIME AND THE FOSSIL RECORD** (3-0) 3 hours credit — The succession of life as evidenced by the fossil record. Includes the evolution of the continents and ocean basins as well as methods of dating earth materials and events. Prerequisites: six hours of science and junior standing. May not be used to satisfy any of the requirements for a degree in geology. **I.**
- 3307. GEOLOGY AND ENERGY RESOURCES** (3-0) 3 hours credit — Economics and environmental impact of exploration for and exploitation of energy resources including coal, gas, oil, and selected fissionable materials. The future role of geothermal, solar, and water energy sources. Prerequisite: six hours of science and junior standing or permission of instructor. May not be used to satisfy any of the requirements for a degree in geology. **I.**
- 3308. GEOLOGY OF NATIONAL PARKS AND MONUMENTS** (3-0) 3 hours credit — Geological and geographical evolution of national parks and monuments. Prerequisites: six hours of science and junior standing. May not be used to satisfy any of the requirements for degrees in geology. **I.**
- 3309. LANDSCAPE EVOLUTION** (3-0) 3 hours credit — An introduction to geomorphology involving a study of the processes and products of landform and landscape evolution. Includes geologic evolution, rocks and weathering, soils and landscapes. Prerequisites: six hours science and junior standing. May not be used to satisfy any of the requirements for BS degree in geology but will count toward a BA degree.
- 3340. GEOLOGY FOR ENGINEERS** (2-3) 3 hours credit — Aspects of geology that are important to civil engineers, such as earth materials, geological hazards, and geological recognition. The laboratory will include instrumental analysis, case histories, and field trips. May not be used to satisfy any of the requirements for a degree in geology. **\$2 lab fee. S.**
- 3441. PALEONTOLOGY** (3-3) 4 hours credit — An introduction to the biology, morphology, and taxonomy of fossil invertebrates. Prerequisites: GEOL 1346; BIOL 1448. **\$4 lab fee. F.**
- 3442. STRATIGRAPHY AND SEDIMENTARY PETROLOGY AND PETROGRAPHY** (3-3) 4 hours credit — An introduction to the description, origin, and historical interpretation of stratified rocks. Prerequisites: GEOL 2445 and 3441 or permission of the instructor. **\$2 lab fee. S.**
- 3443. STRUCTURAL GEOLOGY** (3-3) 4 hours credit — The genesis, classification, and description of structural features resulting from deformation of the earth's crust. Prerequisites: GEOL 2446, 3442 (or concurrent enrollment), and a course in physics, or permission of the instructor. **\$2 lab fee. S.**
- 3687. SUMMER FIELD COURSE** 6 hours credit — Given only during the summer session. Requires the student to construct geologic maps and sections in unfamiliar geologic areas. Reports on areas mapped are required. Prerequisites: GEOL 2446, 3442, 3443. **\$8 lab fee. A special fee may be charged for this course. SSI.**
- 4115. SEMINAR** (1-0) 1 hour credit — Provides the geology major with a survey of geologic problems and requires individual reports, both oral and written. Prerequisite: senior standing. **I.**
- 4189. PROBLEMS IN GEOLOGY** (0-3) 1 hours credit — Supervised undergraduate research in any one of the various fields of geology. May be repeated but will not meet the requirements of nine hours of 4000 courses as listed in the requirements for a BS Degree in Geology. Prerequisite: senior standing and permission of the instructor. **\$2 lab fee. F, S, SSI, SSII.**
- 4289. PROBLEMS IN GEOLOGY** (0-6) 2 hours credit — Supervised undergraduate research in any one of the various fields of geology. May be repeated but will not meet the requirement of nine hours of 4000 courses as listed above. Prerequisites: senior standing in geology and permission of the instructor. **\$4 lab fee. F, S, SSI, SSII.**
- 4309. INTRODUCTION TO GEOPHYSICS** (3-0) 3 hours credit — The earth's gravity, magnetism and seismology and their use in the interpretation of the structure of the earth's crust and interior and in exploration for mineral deposits. Prerequisites: GEOL 3443 or permission of the instructor. **I.**
- 4310. INTRODUCTION TO GEOCHEMISTRY** (3-0) 3 hours credit — Geochemistry of the elements, processes governing distribution of elements within the earth, and chemical processes in sedimentary, metamorphic, and igneous environments. Prerequisite: GEOL 2446 and 3442 (or concurrent enrollment), or CHEM 3322, or permission of the instructor. **S.**
- 4315. ECONOMIC GEOLOGY-MINERAL DEPOSITS** (3-0) 3 hours credit — An introductory survey of the occurrences, origin, classification, and utilization of metallic and non-metallic mineral deposits. Prerequisite: GEOL 3443. **S.**
- 4342. STRATIGRAPHIC PALEONTOLOGY:** (2-3) 3 hours credit — The separation and differentiation of rock units in time and space on the basis of the fossils they contain. Emphasis is placed on biostratigraphically significant fossil groups during each Phanerozoic epoch. Prerequisites: GEOL 3441 and 3442 (or concurrent enrollment) or permission of instructor. **\$4 lab fee. S.**
- 4344. GEOMORPHOLOGY** (3-0) 3 hours credit — A study of the nature and evolution of landforms and surficial deposits, concentrating on groups of processes including weathering, mass movements, fluvial, glacial, nival, eolian, and marine. Prerequisite: GEOL 3442 (or concurrent enrollment). **S.**

## GEOLOGY

**4345. OPTICAL MINERALOGY** (2-4) 3 hours credit — Principles of optical crystallography and mineral identification. The relationships of optical characteristics to the structure and chemistry of minerals. Prerequisite: GEOL 2445. **\$2 lab fee. F.**

**4348. ENVIRONMENTAL AND ENGINEERING GEOLOGY** (2-3) 3 hours credit — Geological aspects of both engineering and environmental problems. Geology as applied to site evaluation, construction, and environmental assessment. Prerequisite: junior standing in geology or engineering or permission of the instructor. **\$2 lab fee. F.**

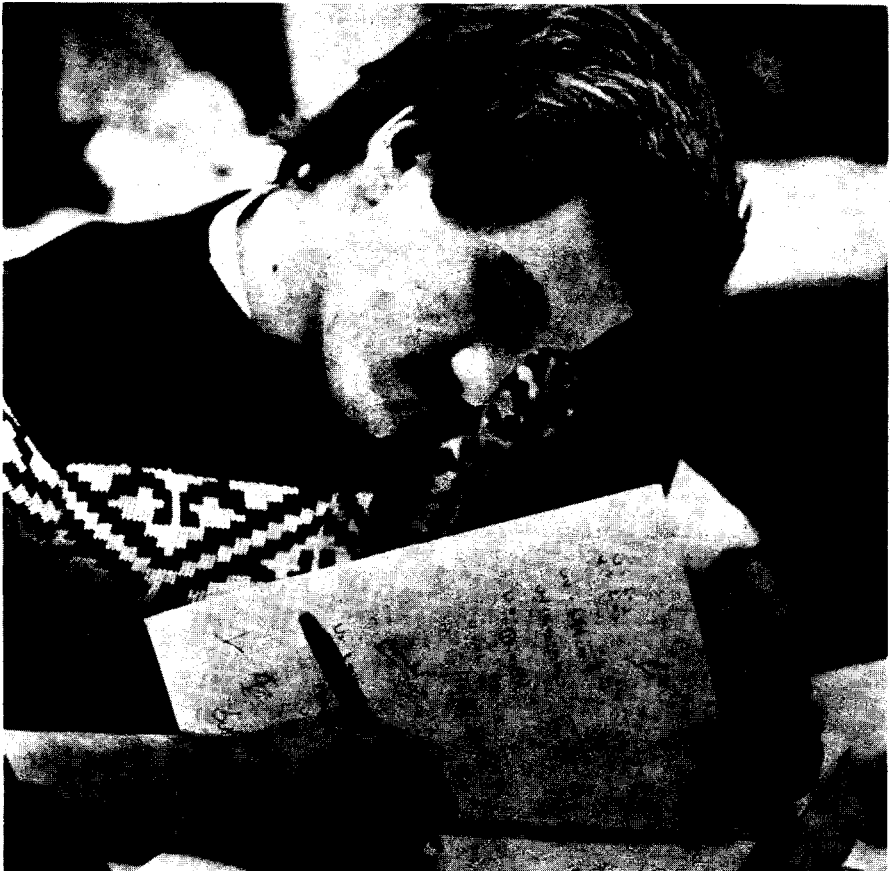
**4350. ECONOMIC GEOLOGY-ENERGY RESOURCES** (2-3) 3 hours credit — Provides a background in energy resource exploration, development, and evaluation, with special emphasis on petroleum, natural gas, and coal resources. Prerequisite: GEOL 3443. **\$2 lab fee. I.**

**4352. STATISTICS AND DATA ANALYSIS IN GEOLOGY** (3-0) 3 hours credit — Statistics and multivariate techniques as practical research tools in the solving of problems in the earth sciences. Emphasis on techniques currently used in academic and industrial research. Major areas covered are: analysis of sequences of data; map analysis; and analysis of multivariate data. Prerequisite: MATH 3310 or equivalent or permission of instructor. **S.**

**4353. VOLCANOLOGY** (2-3) 3 hours credit — A broad survey of volcanic rocks, landforms, products, minerals, volatiles, and processes at a generally descriptive to semi-quantitative level. Introduces areas of interface with other branches of geology and with socio-economic interest. Prerequisite: GEOL. 3442. **\$2 lab fee. F.**

**4443. SEDIMENTOLOGY** (3-3) 4 hours credit — The analysis and origin of sedimentary rocks. Prerequisites: GEOL 2446, 3442. **\$3 lab fee. F.**

**4446. ADVANCED IGNEOUS AND METAMORPHIC PETROLOGY** (3-3) 4 hours credit — Hand specimen and thin section study of igneous and metamorphic rocks. Emphasis on theoretical principles governing the origin and evolution of crustal rocks. Prerequisite: GEOL 2446 or permission of the instructor. **\$2 lab fee. I.**



# The Department of MATHEMATICS

## REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN MATHEMATICS

<b>Chemistry:</b>	1301*, 1302, 1284.
<b>English:</b>	1301, 1302, and six hours of literature.
<b>Foreign Language:</b>	French, German, or Russian 1441, 1442 or equivalent, and 2313 or RUSS 1451, 1452, and 2321. (GERM 2315 may be substituted for 2313.)
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Physics:</b>	1443, 1444, and three hours from 2311, 3313, 3445.
<b>Electives:</b>	Nine hours outside engineering, mathematics, and the sciences. Courses in psychology may be used to satisfy this requirement.
<b>Other Electives:</b>	Sufficient number of hours to complete the total hours required for a degree.
<b>Major:</b>	MATH 1325, 1326, 2325, 2326; nine semester hours from 3313, 3321, 3335, 3345; and 18 additional advanced hours. Two sequences of six advanced semester hours must be included.
<b>Minor:</b>	18 hours in a single field or 24 hours in two different fields. Six hours must be advanced and all must be from the Colleges of Science or Engineering.
<b>Total:</b>	122 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

\*CHEM 1301 may be waived for students with an adequate score on the Department of Chemistry placement examination.

### *Suggested Course Sequence:*

#### FRESHMAN YEAR

**First Semester:** MATH 1324; MATH 1325; CHEM 1301; ENGL 1301; HIST 1311; Physical Education or Military Science or Marching Band — Total Credit 16 hours.

**Second Semester:** MATH 1326; CHEM 1302; CHEM 1284; ENGL 1302; HIST 1312; Elective, 3 hours; Physical Education or Military Science — Total Credit 18 hours.

#### SOPHOMORE YEAR

**First Semester:** MATH 2325; PHYS 1443; English (literature), 3 hours; POLS 2311; Elective, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 17 or 18 hours.

**Second Semester:** MATH 2326; Mathematics, 3 hours; PHYS 1444; English (literature), 3 hours; POLS 2312; Physical Education or Military Science — Total Credit 17 or 18 hours.

#### JUNIOR YEAR

**First Semester:** Mathematics, 6 hours; French, German, or Russian, 4 hours; Physics, 3 or 4 hours; Electives, 2 to 4 hours — Total Credit 15 to 18 hours.

**Second Semester:** Mathematics, 6 hours; French, German, or Russian, 4 hours; Electives, 6 to 8 hours — Total Credit 16 to 18 hours.

#### SENIOR YEAR

**First Semester:** Mathematics, 6 hours; French, German, or Russian, 3 hours; Electives, 6 to 9 hours — Total Credit 15 or 18 hours.

**Second Semester:** Mathematics, 6 hours; Electives, 9 to 12 hours — Total Credit 15 to 18 hours.

## **MATHEMATICS**

### **REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN MATHEMATICS**

<b>English:</b>	1301, 1302, and six hours of literature.
<b>Foreign Language:</b>	1441, 1442, 2313 or equivalent, and 2314 or RUSS 1451, 1452, 2321, and 2322.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Science:</b>	A minimum of 12 hours (including at least six hours with laboratory in one science) from BIOL 1447 and 1448; CHEM 1301, 1302, and 1284; GEOL 1345 and 1346; PHYS 1443 and 1444; or from courses having one of these as a prerequisite.
<b>Electives:</b>	Sufficient number of hours to complete the total hours required for a degree.
<b>Major:</b>	MATH 1325, 1326, 2325, 2326; nine semester hours from 3313, 3321, 3335, 3345; and 12 additional advanced hours. One sequence of six advanced semester hours must be included.
<b>Minor:</b>	18 hours in a single field, six of which must be advanced.
<b>Total:</b>	122 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

#### ***Suggested Course Sequence:***

##### **FRESHMAN YEAR**

**First Semester:** MATH 1324; MATH 1325; ENGL 1301; HIST 1311; Science, 3 or 4 hours; Physical Education or Military Science or Marching Band — Total Credit 16 to 17 hours.

**Second Semester:** MATH 1326; ENGL 1302; HIST 1312; Science, 3 or 4 hours; Elective, 3 or 4 hours; Physical Education or Military Science — Total Credit 16 to 18 hours.

##### **SOPHOMORE YEAR**

**First Semester:** MATH 2325; English (literature), 3 hours; POLS 2311; Science, 3 or 4 hours; Elective, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 16 to 18 hours.

**Second Semester:** MATH 2326; Mathematics, 3 hours; English (literature), 3 hours; POLS 2312; Science, 3 or 4 hours; Physical Education or Military Science — Total Credit 16 to 18 hours.

##### **JUNIOR YEAR**

**First Semester:** Mathematics, 6 hours; Foreign Language, 4 hours; Electives, 6 to 8 hours — Total Credit 16 to 18 hours.

**Second Semester:** Mathematics, 6 hours; Foreign Language, 4 hours; Electives, 6 to 8 hours — Total Credit 16 to 18 hours.

##### **SENIOR YEAR**

**First Semester:** Mathematics, 3 hours; Foreign Language, 3 hours; Electives, 9 to 12 hours — Total Credit 15 to 18 hours.

**Second Semester:** Mathematics, 3 hours; Foreign Language, 3 hours; Electives, 9 to 12 hours — Total Credit 15 to 18 hours.



**REQUIREMENTS FOR A BACHELOR OF SCIENCE  
DEGREE IN MATHEMATICS  
(Computer Science Option)**

- English:** 1301, 1302, and six additional hours.
- Foreign Language:** 1441, 1442 or equivalent, and 2313 in one foreign language.
- Political Science:** 2311, 2312.
- History:** 1311, 1312 (A Texas History course may be substituted for one of these two courses.)
- Science:** A minimum of 12 semester hours (including at least six hours in one science with laboratory) from BIOL 1447 and 1448; CHEM 1301, 1302, and 1284; GEOL 1345 and 1346; PHYS 1443 and 1444; or from courses which have one of these as a prerequisite.
- Core:** A total of 60 hours which must include: MATH 1324\*, 1325, 1326, 2325, 2326, 3345, 4345; two of the following: 3313, 3321, 3335; CSE 3341. Two sequences of six advanced hours must be included. At least 36 advanced hours in mathematics and/or computer science must be completed. Courses in mathematics and computer science must be approved by the advisors in the Department of Mathematics.
- Electives:** Nine hours outside engineering, mathematics, and the sciences. Courses in psychology may be used to satisfy this requirement.
- Other Electives:** Sufficient to give the total number of hours required for a degree.
- Total:** 122 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

\*This requirement may be satisfied by passing advanced standing test or by receiving credit for MATH 1302 or 1303.

**Suggested Course Sequence:**

**FRESHMAN YEAR**

**First Semester:** MATH 1324\*; MATH 1325; ENGL 1301; HIST 1311; Science or Elective, 3 or 4 hours; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 hours.

**Second Semester:** MATH 1326; CSE 2306; ENGL 1302; HIST 1312; Science or Elective, 3 or 4 hours; Physical Education or Military Science — Total Credit 16 or 17 hours.

**SOPHOMORE YEAR**

**First Semester:** MATH 2325; MATH 3345; Science, 3 or 4 hours; English, 3 hours; Elective, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 16 to 18 hours.

**Second Semester:** MATH 2326; MATH 3318; CSE 3341; English, 3 hours; POLS 2311; Physical Education or Military Science — Total Credit 16 or 17 hours.

**JUNIOR YEAR**

**First Semester:** MATH 4345; Mathematics, 3 hours; Computer Science, 3 hours; Foreign Language, 3 or 4 hours; POLS 2312 — Total Credit 15 or 16 hours.

**Second Semester:** Mathematics, 6 hours; Computer Science, 3 hours; Foreign Language, 3 or 4 hours; Electives, 3 or 4 hours — Total Credit 15 to 17 hours.

**SENIOR YEAR**

**First Semester:** Mathematics, 6 hours; Computer Science, 3 to 6 hours; Foreign Language, 3 hours; Elective, 3 hours — Total Credit 15 to 18 hours.

**Second Semester:** Mathematics, 3 hours; Computer Science, 3 to 6 hours; Electives, 6 to 9 hours — Total Credit 12 to 18 hours.

## MATHEMATICS

### REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN MATHEMATICS (Statistics Option)

Requirements for English, Foreign Language, Political Science, History, Science and Electives are the same as those for the Computer Science Option.

- Computer Science:** 2306, 4307 (or approved substitute).  
**Major:** MATH 1324\*, 1325, 1326, 2325, 2326, 3330, 3345, 3321 or 3335, and nine additional advanced hours (exclusive of 3313 and 4313). Two sequences of six advanced semester hours must be included.  
**Statistics:** MATH 3313, 4313; MASI 4302; BUSA 3322; IE 3314, 3315, or 4308 or 3313.  
**Other Electives:** Sufficient to give the total number of hours required for a degree.  
**Total:** 122 hours, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

\*This requirement may be satisfied by passing Advanced Standing Test or by receiving credit for MATH 1302 or 1303.

#### *Suggested Course Sequence:*

##### FRESHMAN YEAR

Freshman course sequence will be the same as for the Computer Science Option.

##### SOPHOMORE YEAR

- First Semester:** MATH 2325; MATH 3330; English, 3 hours; POLS 2311; Science or Elective, 3 or 4 hours; Physical Education or Military Science or Marching Band — Total Credit 16 to 18 hours.  
**Second Semester:** MATH 2326; MATH 3345; English, 3 hours; POLS 2312; Elective, 3 hours; Physical Education or Military Science — Total Credit 16 to 17 hours.

##### JUNIOR YEAR

- First Semester:** MATH 3313; Mathematics, 3 hours; Foreign Language, 3 or 4 hours; Electives, 6 hours — Total Credit 15 or 16 hours.  
**Second Semester:** MATH 4313; Mathematics, 3 hours; BUSA 3322; Foreign Language, 3 or 4 hours; Elective, 3 hours — Total Credit 15 to 16 hours.

##### SENIOR YEAR

- First Semester:** Mathematics, 3 hours; MASI 4302; IE 3314; Foreign Language, 3 or 4 hours; Electives, 3 hours — Total Credit 15 to 16 hours.  
**Second Semester:** Mathematics, 3 hours; Industrial Engineering, 3 hours; CSE 4307; Electives, 6-9 hours — Total Credit 15 to 18 hours.

### REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN MATHEMATICS (Management Science Option)

Requirements for English, Foreign Language, Political Science, History, Science and Electives are the same as those for the Computer Science Option.

- Other Electives:** Sufficient hours to complete the total hours required for a degree. (CSE 2306 is recommended.)  
**Core:** MATH 1324\*, 1325, 1326, 2325, 2326, 3313, 3330, 3321 or 3335, 3345, and 12 additional advanced hours. Two sequences of six advanced semester hours must be included. MASI 3306, 3307, and six additional hours; ECON 2305, 2306, ACCT 2301, 2302. Six additional advanced hours in business. (BUSA 3322 may be taken after student has completed MATH 3313.)  
**Total:** 124 hours of which at least 36 must be advanced, plus physical education or military science or marching band as required.

\*This requirement may be satisfied by passing advanced standing test or receiving credit for MATH 1302 and 1303.

**Suggested Course Sequence:****FRESHMAN YEAR**

Freshman course sequence will be the same as for the Computer Science Option.

**SOPHOMORE YEAR**

**First Semester:** MATH 2325; English, 3 hours; ACCT 2301; ECON 2305; Science, 3 or 4 hours; Physical Education of Military Science or Marching Band — Total Credit 16 to 18 hours.

**Second Semester:** MATH 2326; English, 3 hours; ACCT 2302; ECON 2306; Science, 3 or 4 hours; Physical Education or Military Science — Total Credit 16 or 17 hours.

**JUNIOR YEAR**

**First Semester:** MATH 3313; MATH 3330; MASI 3306; POLS 2311; Electives or Science or Foreign Language, 3 or 4 hours — Total Credit 15 or 16 hours.

**Second Semester:** Mathematics, 6 hours; Management Science, 3 hours; POLS 2312; Electives or Science or Foreign Language, 3 to 6 hours — Total Credit 15 to 18 hours.

**SENIOR YEAR**

**First Semester:** MATH 3345; Mathematics, 3 hours; Management Science, 3 hours; Electives or Foreign Language, 6 to 9 hours — Total Credit 15 to 18 hours.

**Second Semester:** Mathematics, 6 hours; Management Science, 3 hours; Elective or Foreign Language, 3 to 9 hours — Total Credit 12 to 18 hours.

**TEACHER CERTIFICATION****ELEMENTARY CERTIFICATION**

Elementary certification in mathematics is possible. Ask the departmental chairman for complete information.

**SECONDARY CERTIFICATION**

Mathematics majors who desire certification for teaching at the secondary level must fulfill the requirements for a second teaching field and must also take 18 hours of education as prescribed in the Education section of the Catalog.

Students who select mathematics as a teaching field should take the following mathematics courses: 1302 or 1303 or 1324, 1325, 1326, 2325, and 12 semester hours from 3301, 3307, 3313, 3321, 3330, 3341, 3345. If a student's first course is 1325, three additional hours will be required.

**SECOND MAJOR**

A person who satisfies requirements for any other baccalaureate degree qualifies for having mathematics named as a second major upon completion of 21 semester hours from mathematics courses with numbers 3300 or higher. Nine of these hours must be from MATH 3313, 3321, 3335, and 3345. Three semester hours at the 4000 level must be included.

**MATHEMATICS MAJORS**

MATH 1306, 1307, 1315, 1316, 1318, 2311, 3310; BUSA 3321; and CSE 4301 will not be counted for credit toward a mathematics degree.

**MATHEMATICS SEQUENCES**

Sequences approved by the Mathematics Department are MATH 3313-4313, 3318-4320 or 4324, 3321-4321 or 4331, 3335-4335 or 4334, 3345-4345.

**MATHEMATICS (MATH)**

*Chairman: Professor Lakshmikantham*

*Professors Bernfeld, Corduneanu, Eisenfeld, Greenspan, Han, Kannan, Ladde, R. Moore, Wall*

*Associate Professors Beeman, Bolen, Childers, Dyer, Green, Harvey, Heath, Huggins, Lawley, Marshall, M. Moore, Nestell, Perryman, Tennison, Turney, Williams*

*Assistant Professors Brooks, Dean, Foster, Gilbreath, Gillespie, Hoit, Mead, Shilling, Warren*

## MATHEMATICS

Students considering graduate studies in mathematics are advised to take  
MATH 3313, 3321, 3335, 4335, and 4321 or 4331.

- 1126. APPLICATIONS OF CALCULUS I AND ANALYTIC GEOMETRY** (1-0) 1 hour credit — Designed to give the student better insight in applying mathematics to problems which occur in a diversity of scientific and nonscientific areas and a better understanding of the mathematical processes themselves. **To be taken concurrently with MATH 1326.**
- 1302. COLLEGE ALGEBRA** (3-0) 3 hours credit — Quadratic equations, systems of equations involving quadratics, ratios, variations, progressions, the binomial theorem, inequalities, theory of equations, determinants, and set operations.
- 1303. TRIGONOMETRY** (3-0) 3 hours credit — Functions of angles, radians, graphs of trigonometric functions, inverse functions, trigonometric identities and equations, and complex numbers.
- 1306. SURVEY OF MATHEMATICS I** (3-0) 3 hours credit — Topics from logic, algebra, analysis, geometry, topology, probability, and statistics, for students not in the mathematical sciences. Credit will not be given in MATH 1306 if a student has received credit in MATH 1303 or 1324.
- 1307. SURVEY OF MATHEMATICS II** (3-0) 3 hours credit — A survey of some practical aspects of mathematics, including mathematics for consumers. Percentages, interest, installment buying, annuities, and tax rates. Prerequisite: MATH 1302, 1306, or equivalent.
- 1311. CALCULUS WITH ANALYTIC GEOMETRY I** (3-0) 3 hours credit — Analytic geometry, vectors, functions, and derivatives with applications to biological phenomena. Prerequisites: two years of algebra and one-half year of trigonometry or MATH 1324 or 1302 and 1303. Students may receive only three hours credit from 1311, 1316, 1321, 1326.
- 1312. CALCULUS WITH ANALYTIC GEOMETRY II** (3-0) 3 hours credit — Analytic geometry, integration, multivariate functions, and multiple integrals with applications to biological processes. Prerequisite: MATH 1311. Student may receive only three hours credit from 1312 and 2325.
- 1315. COLLEGE ALGEBRA FOR ECONOMIC AND BUSINESS ANALYSIS** (3-0) 3 hours credit — Presents material covered in a traditional algebra course but with emphasis toward business applications. Linear equations, systems of linear equations, systems of linear inequalities, elements of matrix algebra, determinants, summation notation, and logarithms. Prerequisite: one year of high school algebra or equivalent. Two years of high school algebra or college algebra is desirable.
- 1316. MATHEMATICS FOR ECONOMICS AND BUSINESS ANALYSIS** (3-0) 3 hours credit — Presents some of the mathematical tools that are useful in the analysis of business and economic problems. Topics are: compound interest, annuities, differential and integral calculus, probability, and elementary set theory. Prerequisite: MATH 1315 or equivalent.
- 1318. MATHEMATICS FOR SOCIAL SCIENCES** (3-0) 3 hours credit — Topics from algebra, elementary combinatorics, and applications on the computer.
- 1321. ELEMENTS OF ANALYTIC GEOMETRY AND CALCULUS** (3-0) 3 hours credit — Distance, straight line, conics, curve sketching, differential calculus, and introduction to integration. Prerequisite: MATH 1324 or 1302 or equivalent. Credit cannot be received for 1321 and 1325 or 1326 or 1316.
- 1324. ALGEBRA AND TRIGONOMETRY** (3-0) 3 hours credit — Selected topics in college algebra and trigonometry. Credit cannot be obtained for MATH 1324 and MATH 1302 or 1303.
- 1325. ANALYTIC GEOMETRY** (3-0) 3 hours credit — Plane and solid analytic geometry. Prerequisite: high school mathematics (two years of algebra and one-half year of trigonometry) or MATH 1324 or MATH 1302 and 1303.
- 1326. CALCULUS I** (3-0) 3 hours credit — The calculus of rational functions and applications. Prerequisite: MATH 1325 or concurrent registration or major counselor's approval based on high school record and score on entrance exam. **Mathematics majors are strongly advised to take MATH 1326 and 1126 concurrently.**
- 2300. INTRODUCTION TO THE FOUNDATIONS OF MATHEMATICS** (3-0) 3 hours credit — Elementary logic, intermediate set theory, properties of the integers, and developments of the rational numbers and the real numbers. Prerequisite: MATH 2325. (Credit will not be given for both MATH 3300 and 2300.)
- 2311. ELEMENTARY PROBABILITY AND STATISTICS** (3-0) 3 hours credit — A set-theoretic introduction to discrete probability, an intuitive introduction to continuous stochastic variables, binomial and normal distributions, central limit theorem, and tests of hypotheses. Prerequisite: MATH 1302 or 1324. Credit will not be given for MATH 2311 after a student has completed MATH 2325 or 2335.
- 2325. CALCULUS II** (3-0) 3 hours credit — The calculus of transcendental functions and applications. Prerequisite: MATH 1326.
- 2326. CALCULUS III** (3-0) 3 hours credit — The calculus of functions of  $n$ -variables, series, and applications. Prerequisite: MATH 2325.
- 3301. INTRODUCTION TO THE FOUNDATIONS OF GEOMETRY** (3-0) 3 hours credit — An axiomatic development of the foundations of Euclidean geometry. Prerequisite: MATH 2325.

- 3302. MULTIVARIATE ANALYSIS (3-0)** 3 hours credit — Topics in multivariate data analysis of particular interest to those engaged in business research. Included are multivariate regression analysis, introduction to econometric models, discriminate analysis, cluster analysis, factor analysis, and the use of standard multivariate statistical packages. Prerequisites: Statistics course, MATH 1326.
- 3303. MATHEMATICS OF DECISION THEORY (3-0)** 3 hours credit — Focuses on the mathematical models and techniques in financial decision making under uncertainty. Topics include risk measurement, expected utility theory, decision trees, and two-person zero sum games. Prerequisites: Statistics course, MATH 1326.
- 3304. MATHEMATICS OF MANAGEMENT SCIENCE (3-0)** 3 hours credit — An introduction to linear programming, network analysis, dynamic programming, and queuing. Prerequisites: MATH 1326 and junior standing.
- 3307. ELEMENTARY NUMBER THEORY (3-0)** 3 hours credit — Various topics in elementary number theory. Topics include divisibility, congruences, quadratic reciprocity, and multiplicative functions. Prerequisite: MATH 2325 or concurrent registration.
- 3310. STATISTICAL ANALYSIS (3-0)** 3 hours credit — Basic experimental statistics, confidence limits, tests of significance, linear correlation and regression, and analysis of variance. Prerequisite: six hours of mathematics.
- 3313. INTRODUCTION TO PROBABILITY AND MATHEMATICAL STATISTICS (3-0)** 3 hours credit — Elementary probability theory, discrete and continuous random variables, the algebra of expectations, estimation of parameters, confidence intervals, and elementary tests of hypotheses. Prerequisite: MATH 2326.
- 3315. MATHEMATICAL MODELS (3-0)** 3 hours credit — Methods for solving, by means of mathematics, problems which occur in other disciplines such as biology. Computer-oriented mathematics and differential equations are among the most common mathematical tools used in modeling. Although the subject matter will depend on the particular instructor, applications of mathematics to non-mathematical fields will be emphasized. Prerequisite: MATH 2326 or permission of the instructor.
- 3318. DIFFERENTIAL EQUATIONS (3-0)** 3 hours credit — Ordinary differential equations with emphasis on the solutions and analysis of first and higher order differential equations drawn from the fields of physics, chemistry, geometry, and engineering. Prerequisite: MATH 2326 or concurrent registration.
- 3321. INTRODUCTION TO ABSTRACT ALGEBRA I (3-0)** 3 hours credit — Abstract algebraic structures including groups, rings, and fields. Prerequisite: MATH 2326.
- 3330. INTRODUCTION TO MATRIX ALGEBRA (3-0)** 3 hours credit — An introduction to the basic concepts of matrix theory; development of numerical procedures involving matrices. Prerequisite: MATH 2325 or concurrent registration.
- 3335. INTRODUCTION TO ANALYSIS I (3-0)** 3 hours credit — A rigorous study of sequences and series of real numbers, metric spaces, continuous functions, differentiation, integration, and sequences and series of functions. Prerequisite: MATH 2326.
- 3336. INTRODUCTION TO MATHEMATICAL LOGIC (3-0)** 3 hours credit — The statement of calculus and restricted predicate calculus; the system of natural deduction, with application to algebra, analysis, and topology, and an axiomatic treatment of the class calculus. Prerequisite: MATH 2326 or concurrent registration.
- 3341. APPLICATIONS OF APL/360 TO SCIENTIFIC PROBLEMS (2-2)** 3 hours credit — An introduction to the APL/360 language sufficient to solve elementary scientific problems. Prerequisite: MATH 1326.
- 3342. COMPUTATIONAL GEOMETRY (2-2)** 3 hours credit — A survey of the mathematical elements for computer graphics. Topics included are: affine, perspective and projective transformations, Bezier and B-spline curves and surfaces. Prerequisites: MATH 2326, 3330, and a knowledge of Fortran.
- 3345. NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS I (2-2)** 3 hours credit — Elementary error analysis, numerical solutions of nonlinear equations, numerical integration and differentiation, polynomial interpolation, solutions of linear systems, and an introduction to spline functions. The laboratory work will include use of the computer in solving the problems. Prerequisites: MATH 2325 and a knowledge of FORTRAN
- 4301. MATHEMATICAL THEORY OF INTEREST (3-0)** 3 hours credit — A thorough treatment of theory and applications of interest, equations of value, annuities, amortization schedules and sinking funds, and bonds. Finite differences are presented. Prerequisites: MATH 1326 and senior standing.
- 4303. INTRODUCTION TO TOPOLOGY (3-0)** 3 hours credit — A first course in topology from the axiomatic point of view. Prerequisite: MATH 3335.
- 4311. MATHEMATICAL PROBABILITY (3-0)** 3 hours credit — An introduction to stochastic processes and, in particular, Markov chains. Applications to the fields of science and engineering will be given to illustrate the theory. Prerequisite: MATH 3313.
- 4313. APPLICATIONS OF MATHEMATICAL STATISTICS (3-0)** 3 hours credit — A continuation of MATH 3313. Further theory of testing of hypotheses, regression, correlation, experimental designs, nonparametric statistics, and selected topics. Prerequisite: MATH 3313.

## **MATHEMATICS**

- 4320. ADVANCED DIFFERENTIAL EQUATIONS** (3-0) 3 hours credit — The existence and properties of solution of differential equations. Prerequisite: MATH 3318.
- 4321. INTRODUCTION TO ABSTRACT ALGEBRA II** (3-0) 3 hours credit — A continuation of MATH 3321. Prerequisite: MATH 3321.
- 4322. INTRODUCTION TO COMPLEX VARIABLES** (3-0) 3 hours credit — An introduction to the theory of functions of a complex variable and also an introduction to applications including uses of the residue theory, contour integration and conformal mapping. Prerequisite: MATH 2326.
- 4323. VECTOR ANALYSIS** (3-0) 3 hours credit — An introduction to the algebra and calculus of vectors; includes such topics as the theorems of Green, Gauss, and Stokes with applications to differential geometry and the physical sciences. Prerequisite: MATH 2326.
- 4324. INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS** (3-0) 3 hours credit — Methods of solutions of selected elliptic, parabolic, and hyperbolic partial differential equations with reference to physical applications. Prerequisite: MATH 3318.
- 4325. OPERATIONAL MATHEMATICS** (3-0) 3 hours credit — Laplace and Fourier Transforms, partial differential equations, Bessel Functions, and orthogonal polynomials such as Hermite and Legendre. Prerequisites: MATH 2326 and 3318.
- 4331. INTRODUCTION TO LINEAR ALGEBRA** (3-0) 3 hours credit — The theory of finite dimensional vector spaces and linear transformations. Prerequisite: MATH 3321.
- 4334. ADVANCED MULTIVARIABLE CALCULUS** (3-0) 3 hours credit — The properties of continuous mappings from N-dimensional Euclidean space to M-dimensional Euclidean space; an introduction to differential forms and vector calculus, based upon line integrals, surface integrals, and the general Stokes theorem. Prerequisite: MATH 3335.
- 4335. INTRODUCTION TO ANALYSIS II** (3-0) 3 hours credit — A continuation of MATH 3335. Prerequisite: MATH 3335.
- 4345. NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS II** (2-2) 3 hours credit — Numerical solutions for ordinary differential equations, boundary value problems, minimizations of multivariate functions, and methods of least squares. Prerequisites: MATH 3345 and 3318.
- 4381. MATHEMATICS RESEARCH** (3-0) 3 hours credit — Formulation and definition of research problems, the formulation and execution of strategies of solution, and the presentation of results. Prerequisite: consent of instructor. Recommendation by other faculty encouraged.
- 4191, 4291, 4391. SPECIAL TOPICS IN MATHEMATICS** (Variable credit from 1 to 3 semester hours as arranged) — Special topics in mathematics are assigned to individuals or small groups. Faculty members closely supervise the projects and assign library reference material. Small groups will hold seminars at suitable intervals. May be repeated for credit. Prerequisites: senior standing and written permission of the instructor.
- 4392. SELECTED TOPICS IN MATHEMATICS** (3-0) 3 hours credit — Material may vary from semester to semester depending upon the interest and need of the students. May be repeated for credit. Prerequisites: senior standing and written permission of the instructor.

# The Department of PHYSICS

The Department of Physics offers programs leading to the Bachelor of Science Degree in physics and the Bachelor of Arts Degree in physics.

The Bachelor of Science Degree in physics is intended for those students who wish to pursue graduate work in physics or to seek employment as physicists upon graduation. The Bachelor of Arts Degree in physics is intended for those students who want a broad education with concentration in physics. This program is suitable for pre-medical and pre-dental students (with due attention paid to the requirements of the corresponding professional schools)\* and for teacher preparation with the election of the required education courses.\*\*

Scholarships are offered every year to freshmen or other new students who will be physics majors. Annual awards total approximately \$700.

**\*Pre-medical and pre-dental students should take BIOL 1447, 1448, and two additional courses. BIOL 2451 and 2452 are recommended. The chemistry courses recommended for these students are 1301, 1302, 1284, 2181, 2321, 2182, 2322.**

**\*\*Students desiring certification for teaching at the secondary level must fulfill the requirements for a second teaching field and must take certain education courses as prescribed in the Education section of this catalog.**

## REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN PHYSICS

<b>English:</b>	1301, 1302 and two courses in literature above the freshman level or one course in literature above the freshman level and 2334.
<b>Foreign Language:</b>	Russian, German, or French 1441, 1442 or the equivalent and 2313.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312 (one of which may be replaced by 3363 or 3364).
<b>Electives:</b>	Nine hours outside engineering, mathematics, and the sciences. Courses in psychology may be used to satisfy this requirement.
<b>Electives:</b>	Sufficient to give the total number of hours required for the degree, six of which must be advanced courses in science or mathematics. <b>Note: A second minor may be developed from this group of electives.</b>
<b>Science Other Than Physics:</b>	BIOL 1447, 1448 or GEOL 1345, 1346, and CHEM 1302*, 1284.
<b>Major:</b>	45 hours of physics including 1443, 1444, 2311, 3183, 3313, 3321, 4117, 4185, 4315, 4319 and 4324; 10 hours from 2445, 3445, 3446, 4325 and 4326, and six hours from 2445, 3312, 3315, 3329, 3445, 3446, 4181, 4281, 4325, and 4326.
<b>Minor:</b>	**MATH 1325, 1326, 2325, 2326, 3318, and a 4000 course.
<b>Total Hours:</b>	132, of which at least 36 must be advanced, plus physical education or military science or marching band as required.

**\*Students who have not had high school chemistry or who do not pass the chemistry placement examination must take CHEM 1301.**

**\*\*If the student is not qualified to take MATH 1325 when he/she enters, he/she must complete the prerequisites for the course. This may add three to six hours to the total required for the degree. No course prerequisite for MATH 1325 will be counted as credit toward graduation.**

## SECOND MAJOR

A person who satisfies the requirements for any other baccalaureate degree qualifies for having physics named as a second major upon completion of 26 semester hours from among PHYS 2311 and physics courses with higher numbers. The specific courses to be used must be approved by the undergraduate advisor and the chairman of the Department of Physics.

## PHYSICS

### *Suggested Course Sequence:*

#### FRESHMAN YEAR

**First Semester:** ENGL 1301; MATH 1325; MATH 1326 or Russian, German, or French 1441; HIST 1311; CHEM 1302; CHEM 1284; Physical Education or Military Science or Marching Band — Total Credit 18 or 19 hours.

**Second Semester:** ENGL 1302; MATH 2325; HIST 1312; PHYS 1443; Electives, 3 to 5 hours; Physical Education or Military Science — Total Credit 17-19 hours.

#### SOPHOMORE YEAR

**First Semester:** English (literature), 3 hours; Russian, German, or French 1441 or Russian, German, or French 1442; PHYS 1444; BIOL 1447 or GEOL 1345; MATH 2326; Physical Education or Military Science or Marching Band — Total Credit 18 or 19 hours.

**Second Semester:** English (literature or 2334), 3 hours; BIOL 1448 or GEOL 1346; PHYS 2311; MATH 3318; Physical Education or Military Science — Total Credit 16-18 hours.

#### JUNIOR YEAR

**First Semester:** POLS 2311; PHYS 3313; PHYS 3183; PHYS 3321; Russian, German, or French 1442 or Russian, German, or French 2313; Required Physics courses, 1 to 3 hours; Elective, 3 hours — Total Credit 17-19 hours.

**Second Semester:** POLS 2312; PHYS 4315; Required Physics courses, 3 to 9 hours; Russian, German, or French 2313 or Elective, 3 hours — Total Credit 15-18 hours.

#### SENIOR YEAR

**First Semester:** Mathematics (4000 course), 3 hours; PHYS 4319; PHYS 4117; Required Physics Courses, 4 to 6 hours; Electives, 6 hours — Total Credit 17-19 hours.

**Second Semester:** PHYS 4324; PHYS 4185; Required Physics Courses, 2 or 3 hours; Electives, 12 hours — Total Credit 18 or 19 hours.

### REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE IN PHYSICS

<b>English:</b>	12 hours.
<b>Foreign Language:</b>	14 hours.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312 (one of which may be replaced by 3363 or 3364).
<b>Mathematics:</b>	Nine hours including 2326.
<b>Science Other Than Physics:</b>	12 hours from courses offered in the Departments of Biology, Chemistry, or Geology.
<b>Electives:</b>	Sufficient to give the total number of hours required for the degree.
<b>Major:</b>	PHYS 2311, 3183, 3313, 4117, plus 18 additional hours, of which a minimum of seven must be advanced.
<b>Minor:</b>	18 hours, of which a minimum of six must be advanced.
<b>Total Hours:</b>	124, of which at least 36 must be advanced, plus physical education, military science, or marching band as required.

### *Suggested Course Sequence:*

#### FRESHMAN YEAR

**First Semester:** English, 3 hours; Physics, 3 or 4 hours; Electives, 9 hours; Physical Education or Military Science or Marching Band — Total Credit 17 or 18 hours.

**Second Semester:** English, 3 hours; Physics, 3 or 4 hours; Mathematics, 3 hours; Electives, 6 hours; Physical Education or Military Science — Total Credit 17 or 18 hours.

#### SOPHOMORE YEAR

**First Semester:** English, 3 hours; Physics, 3 hours; Mathematics, 3 hours; Foreign Language 1441; Other science, 3 or 4 hours; Physical Education or Military Science or Marching Band — Total Credit 17 to 19 hours.

**Second Semester:** English, 3 hours; PHYS 2311; MATH 2326; Foreign Language 1442; Other science, 3 or 4 hours; Physical Education or Military Science — Total Credit 17 to 19 hours.



**JUNIOR YEAR**

**First Semester:** PHYS 3313; Other science, 3 hours; Foreign Language, 3 hours; POLS 2311; Elective, 3 hours — Total Credit 15 hours.

**Second Semester:** Physics, 4 hours; Other science, 3 hours; Foreign Language, 3 hours; POLS 2312; Elective, 3 hours — Total Credit 16 hours.

**SENIOR YEAR**

**First Semester:** PHYS 3183; PHYS 4117; HIST 1311; Electives, 11 hours — Total Credit 16 hours.

**Second Semester:** Physics, 3 hours; HIST 1312; Electives, 10 hours — Total Credit 16 hours.

**TEACHER CERTIFICATION****ELEMENTARY CERTIFICATION**

Elementary certification in physics is possible. Ask the departmental chairman for complete information.

**SECONDARY CERTIFICATION**

Students who desire certification at the secondary level in physics, physical science, or composite science must fulfill the requirements of these teaching fields as shown below, must take the required hours in education as shown in the Education section of the catalog, and must fulfill the requirements for a second teaching field (not required in composite science).

**PHYSICS TEACHING FIELD (24 semester hours):**

- (1) Eight semester hours from Group A, B, or C:  
A — 1443, 1444, B — 1441, 1442, C — 1288, 1341, 1342.
- (2) Six semester hours from Group A or B:  
A — 2302, 2311, 3321, B — 2311, 3313, 3321.
- (3) One course from:  
2445, 3445, 3446, 3183, 3366.
- (4) 4117.
- (5) Plus additional semester hours to total 24 with 12 advanced hours.

**PHYSICAL SCIENCE (24 semester hours):**

24 semester hours from: A and B, plus either C or D.

- A. Six semester hours chemistry: 1361, 1362, or 1461, 1462.
- B. Six semester hours physics: 1341, 1342 or 1441, 1442 or 1443, 1444.
- C. 12 semester hours from the following:  
Six semester hours laboratory courses in physical science (Currently UTA does not offer courses designated physical science. Such courses are offered at neighboring institutions, and credit for these courses will be honored in the certification program) and six semester hours from the following: CHEM 3305, 3450 or PHYS 3313, 3366, 3445, 3446 or other approved course(s) in chemistry, physics, or physical science.
- D. 12 semester hours from the following:  
CHEM 3305, 3450 or PHYS 3313, 3445, 3446 or other approved advanced course(s) in chemistry, physics or physical science.

**COMPOSITE SCIENCE (50 Semester Hours, 12 Advanced):**

PHYS 1341, 1342, and 1288 or 1443 and 1444 and 2311, 3183, 3313, 4117 plus 10 additional hours of which a minimum of seven must be advanced.

24 semester hours distributed among biology, chemistry, and geology as shown below plus two to five additional hours in these sciences.

- A. BIOL 1447, 1448.
- B. CHEM 1301 (to be omitted upon advanced placement), 1302, and 1284.
- C. GEOL 1345, 1346.

## PHYSICS

### PHYSICS (PHYS)

*Acting Chairman: Professor Fry*

*Professors Black, Diana, Herrmann, Rayburn, Rubins*

*Associate Professors Coleman, Ellis, Massey, Self, Terrell, Thompson*

*Assistant Professors Brener, Cheney, Doughty, Sharma*

*Adjunct Professor Schachar*

*Adjunct Associate Professor Dowdney*

**1288. SPECIAL PROBLEMS IN GENERAL PHYSICS** (0-6) 2 hours credit — Primarily a problem-solving course in general technical physics, but some selected laboratory work will be assigned. The objective is to prepare the student whose background in physics is of a non-technical nature to do advanced study in technical physics. Prerequisites: six hours of physics and concurrent enrollment in MATH 1325. **\$2 lab fee.**

**1300. INTRODUCTION TO MUSICAL ACOUSTICS** (3-0) 3 hours credit — An introduction, for the music major, to the nature of periodic motion and its relation to music, characteristics of sound waves, sources of sound used in music, musical scales and temperament, mechanics of hearing, recording and reproduction of sound. May not be used to satisfy any of the requirements for the Bachelor of Science degree in physics.

**1341. INTRODUCTORY PHYSICS\*** (2-2) 3 hours credit — PHYS 1341 and 1342 constitute a one-year course for the student who would like to develop an appreciation for physics with its modern concepts. The first semester develops the subject with its study of mechanics, heat, and sound. Includes two lectures and one laboratory session per week. **\$2 lab fee.**

**1342. INTRODUCTORY PHYSICS\*\*** (2-2) 3 hours credit — Follows PHYS 1341 and presents a study of electricity, light, optics, and modern physics. Includes two lectures and one lab session per week. Prerequisite: PHYS 1341 or permission of instructor. **\$2 lab fee.**

**1345. INTRODUCTORY ASTRONOMY I** (2-2) 3 hours credit — PHYS 1345 and 1346 constitute a one-year sequence for any student who is interested in learning man's place within the astronomical universe. These two courses satisfy the six-hour science requirement for students in the Colleges of Liberal Arts or Business Administration or one-half a 12-hour science requirement. During the first semester there is presented an essentially descriptive treatment of the apparent motions of celestial bodies including the sun, the planets and their moons, comets, other members of the solar system, and rockets and satellites as well as the mechanics and evolution of the solar system. The laboratory work includes the use of astronomical telescopes for observation. **\$2 lab fee.**

**1346. INTRODUCTORY ASTRONOMY II** (2-2) 3 hours credit — Follows PHYS 1345 and includes studies of the properties of stars, double stars, variable stars, and exploding stars; the classification and evolution of stars; star clusters; interstellar matter; galaxies and current cosmological theories. The laboratory work includes telescopic observations. **\$2 lab fee.**

**1347. PHYSICS FOR ARCHITECTS\*** (2-2) 3 hours credit — Presents the subjects of mechanics and heat. Subjects of special interest to architecture students, such as statics, dynamics, and heat transfer, are emphasized and applied to architectural problems. Prerequisite: MATH 1325 or concurrent enrollment. **\$2 lab fee.**

**1348. PHYSICS FOR ARCHITECTS\*\*** (2-2) 3 hours credit — Continues PHYS 1347; sound, light, electricity, magnetism, and modern physics. Subjects of special interest to architecture students are applied to architectural problems. Prerequisite: PHYS 1347 or equivalent. **\$2 lab fee.**

**1441. GENERAL COLLEGE PHYSICS\*** (3-3) 4 hours credit — The first half of one-year course required for pre-medical, pre-dental, and certain other students. May be elected as the science requirement by general liberal arts students. The class work is followed closely by laboratory experiments in the study of mechanics, heat, and sound. Credit for high school trigonometry is desirable before one enrolls in general college physics. **\$2 lab fee.**

**1442. GENERAL COLLEGE PHYSICS\*\*** (3-3) 4 hours credit — The second half of a one-year course. Subject matter includes magnetism, electricity, and light. Prerequisite: PHYS 1441 or the equivalent. **\$2 lab fee.**

**1443. GENERAL TECHNICAL PHYSICS\*** (3-3) 4 hours credit — The first half of a one-year technical course. Required for many science and engineering majors. Physical phenomena in the fields of mechanics, heat, and sound. Prerequisite: concurrent registration in MATH 1325 or credit. **\$2 lab fee.**

**1444. GENERAL TECHNICAL PHYSICS\*\*** (3-3) 4 hours credit — Electricity, magnetism, light, and an introduction to atomic physics. Prerequisites: PHYS 1443 and concurrent enrollment in MATH 1326 or credit. **\$2 lab fee.**

**1531. GENERAL PHYSICS** (5-0) 5 hours credit — Introduces the central features of mechanics, heat, acoustics, electricity, magnetism, and light. Prerequisites: enrollment as an engineering major, one year of high school physics or the equivalent, satisfactory achievement on a proficiency examination, and a grade point ratio of 3.2 or 4.0 if previously enrolled in college. If credit is granted for 1531, it will not be granted for any other 1000 courses except 1288, 1345, and 1346.

\* Only one of these courses may be counted for credit.

\*\* Only one of these courses may be counted for credit.

**2302. TWENTIETH CENTURY PHYSICS** (3-0) 3 hours credit — Areas of physics which have developed since 1900, specifically, the concepts of special relativity, quantum physics, and nuclear physics. Designed for students with non-technical majors. Prerequisite: six hours of physics or permission of the instructor. Credit will not be given for both PHYS 2302 and 3313.

**2303. SCIENCE, SCIENTISTS, AND SOCIETY** (3-0) 3 hours credit — Within the context of the historical development of the natural sciences and mathematics, the interrelationships between the sciences and the cultural and sociological background are presented. The role of contemporary science and the influence of scientists on our civilization. Prerequisite: six hours of science.

**2311. INTRODUCTION TO MECHANICS** (3-0) 3 hours credit — Statics, linear motion, curvilinear motion, harmonic motion, and the mechanical oscillation of particles. Prerequisites: MATH 2325 and PHYS 1288, 1444, or 1531.

**2445. ELECTRONICS** (3-3) 4 hours credit — D.C. circuits, elementary A.C. circuits, vacuum tube circuits, and semiconductor circuits. Prerequisites: PHYS 1288, 1444, or 1531 and MATH 1326. **\$2 lab fee.**

**3116. FRONTIERS OF PHYSICS** (1-0) 1 hour credit — Current work in experimental and theoretical physics research. For the interested layman, with emphasis on the relevance of the work and with discussion of directions that development of discoveries may follow. Prerequisite: six hours of science or permission of the instructor.

**3183. MODERN PHYSICS LABORATORY** (0-3) 1 hour credit — Supplements the topics covered in PHYS 3313. Prerequisite: PHYS 3313 or concurrent enrollment. **\$2 lab fee.**

**Science 3301 satisfies the science requirement in Bachelor of Arts degree programs. See Science courses listed on the page preceding the Department of Biology material.**

**3312. EARTH PHYSICS** (3-0) 3 hours credit — The earth's elastic, thermal, gravitational, electromagnetic, and radioactive properties in connection with phenomena such as earthquakes, volcanoes, and mountain building; the nature of the earth and its environment. Prerequisite: a year of general physics, a year of general geology, and junior standing or permission of the instructor.

**3313. INTRODUCTION TO MODERN PHYSICS** (3-0) 3 hours credit — Atomic physics, including the Bohr model, the many-electron atom, the Zeeman effect, the Stark effect, the periodic table, x-rays, photons, and special relativity. Prerequisites: PHYS 1288, 1444, or 1531 and MATH 2325.

**3315. ASTROPHYSICS** (3-0) 3 hours credit — The basic problems of astrophysics and the methods applied to their solution. Radiation and spectra from the sun and stars, nebulae, interstellar matter, and stellar and galactic dynamics and evolution. Prerequisites: PHYS 2311 and 3313 and MATH 3318.

**3318. EXPLORATION GEOPHYSICS** (3-0) 3 hours credit — A survey of geophysics principally as applied to prospecting, especially for petroleum. Prerequisites: PHYS 1288, 1442, 1444, or 1531 and MATH 2325.

**3321. INTERMEDIATE ELECTRICITY AND MAGNETISM** (3-0) 3 hours credit — Vector algebra and vector calculus applied to electrostatics, magnetostatics, the study of dielectric materials, and boundary value problems. Prerequisites: PHYS 2311 and MATH 3318.

**3366. SPECIAL TOPICS IN PRE-COLLEGE PHYSICAL SCIENCE INSTRUCTION** (1-6) 3 hours credit — A laboratory-oriented curriculum for teaching physical science and/or physics is developed and experienced. The developed curriculum is particularly appropriate for pre-college instruction. May be repeated for credit as the subject matter changes, but not more than six hours credit may be accumulated. Prerequisites: junior standing, six hours of science, three hours of education and consent of the instructor.

**3445. OPTICS** (3-3) 4 hours credit — Fundamental principles of physical and geometric optics, absorption and scattering, Planck's quantum theory of radiation, diffraction, interference, light sources, and spectra. Prerequisites: PHYS 1288, 1444, or 1531 and MATH 2325. **\$2 lab fee.**

**3446. NUCLEAR PHYSICS** (3-3) 4 hours credit — Introduction to elementary nuclear theory, including natural and artificial radioactivity, nuclear transformations, fission and fusion. Experimental methods and instrumentation for nuclear physics. Prerequisite: PHYS 3313. **\$2 lab fee.**

**4117. INDIVIDUAL LEARNING BY SEMINAR** 1 hour credit — Individual instruction on using the seminar as a model of learning current topics in physics. An individual report is required. Prerequisites: 18 hours of physics and senior standing.

**4185. ADVANCED ELECTRICITY AND MAGNETISM LABORATORY** (0-3) 1 hour credit — Supplements the topics covered in PHYS 3321 and 4324. Prerequisite: PHYS 4324 or concurrent enrollment. **\$2 lab fee.**

**4181, 4281. SPECIAL PROBLEMS** (1 or 2 hours credit as arranged) — Special laboratory problems. Credit will be given appropriate to work assigned. May be repeated in any order for a total credit not to exceed four hours. Prerequisites: junior standing and permission of the chairman of the department. **\$2 lab fee.**

**4315. THERMODYNAMICS AND STATISTICAL MECHANICS** (3-0) 3 hours credit — The concepts of temperature, heat transfer, specific heat, and phase changes. The laws of thermodynamics and Maxwellian gases and their distribution functions. Introduction to statistical mechanics and low temperature phenomena. Prerequisites: PHYS 2311 and MATH 2326.

## PHYSICS

**4319. ADVANCED MECHANICS (3-0)** 3 hours credit — Coupled oscillators, central forces, Lagrange's equations, Hamilton's canonical equations, the moment of inertia tensor, and the application of Euler's angles to rotational motion. Prerequisites: PHYS 2311, PHYS 3321, and MATH 3318 or permission of the instructor.

**4324. ADVANCED ELECTRICITY AND MAGNETISM (3-0)** 3 hours credit — Electromagnetic phenomena based on Maxwell's equations and particle-field interactions. Prerequisite: PHYS 3321.

**4325. SOLID STATE PHYSICS (3-0)** 3 hours credit — Classification of crystalline solids and elastic and thermal properties, electric and magnetic properties, and electronic properties of solids. An introduction to current research problems. Prerequisite: PHYS 4315 or permission of the instructor.

**4326. INTRODUCTION TO QUANTUM MECHANICS (3-0)** 3 hours credit — The need for quantum mechanics to describe modern experiments adequately. Schrodinger's equation and implications, the free particle, the one-electron atom, the potential barrier, and perturbation theory. Prerequisite: PHYS 4319 or permission of the instructor.

**4191, 4291, 4391. SPECIAL TOPICS IN PHYSICS (1, 2 or 3 hours credit)** — Special topics in physics, arranged for individuals or small groups. May be repeated for credit up to a maximum of three hours. Prerequisite: written permission of the instructor and the chairman of the department.



# The Department of PSYCHOLOGY

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The Department of Psychology offers programs leading to the Bachelor of Science degree and to the Bachelor of Arts degree in psychology.

The Bachelor of Science degree in psychology is intended for those students who wish to pursue graduate work in psychology or other fields. This program is also suitable for pre-medical and pre-dental students (with due attention paid to the requirements of the corresponding professional schools).\*

The Bachelor of Arts degree in psychology is for those students who wish to obtain a broad liberal arts education with a concentration in psychology or for teacher preparation (see the Education section of the catalog).

**Restrictions: psychology courses cannot be used to fulfill any of the science requirements for a bachelor's degree. Psychology courses may be used to fulfill the requirements of nine hours outside electives on bachelor of science degrees, other than psychology.**

\*Pre-medical and pre-dental students should take BIOL 1447, 1448, 2451, 2452; CHEM 1301, 1302, 1284, 2181, 2321, 2182, 2322; PHYS 1441, 1442.

## REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN PSYCHOLOGY

<b>English:</b>	12 hours or the equivalent including six hours of literature.
<b>Foreign Language:</b>	1442 and 2313 or equivalent in one language. With approval of major advisor, CSE 2306 may be substituted for 2313.
<b>History:</b>	1311, 1312, or six hours from 3342, 3347, 3360, 3362.
<b>Mathematics:</b>	1325, 1326 and three hours approved by advisor.
<b>Political Science:</b>	2311 and 2312 or any six hours meeting the legislative requirement.
<b>Other Science:</b>	A total of 15 hours, including at least one three-course sequence or two two-course sequences beginning with the following: BIOL 1447 and 1448 or CHEM 1302 and 1284 or PHYS 1443 and 1444* or PHYS 1441 and 1442. Computer science may be included to meet the 15-hour requirement.
<b>Outside Electives:</b>	Nine hours outside biology, chemistry, physics, and psychology.
<b>Electives:</b>	Sufficient hours to complete the total required for the degree. **
<b>Major:</b>	34 hours to include 1311 or 1315 or 3300; 2441; 2342. Twelve hours of the following: 3440, 3441, 3332 and 3142, 3315 and 3144, 3445. One course from each of the areas A, B, and C. (4326 may be substituted for one of the courses in Areas A, B, or C) — A. 3326, 3330, 4313. B. 4316, 4335, 4336, 4341. C. 3307, 3309, 3314, 3315.
<b>Minor:</b>	18 hours of which at least six must be beyond the second-year level. Minors in biology, chemistry, mathematics, or physics are strongly recommended.
<b>Total:</b>	129 hours, of which at least 36 must be advanced, plus physical education, military science, or marching band as required.

\*Recommended physics sequence.

\*\*A science minor releases 15 additional hours for electives.

## **PSYCHOLOGY**

### **Suggested Course Sequence:**

#### **FRESHMAN YEAR**

**First Semester:** PSYC 1315; English, 3 hours; Foreign Language, 4 hours; Mathematics, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 14 hours.

**Second Semester:** PSYC 2441; English, 3 hours; Foreign Language, 4 hours; Mathematics, 3 hours; Physical Education or Military Science — Total Credit 15 hours.

It is strongly recommended that PSYC 2441 and 2342 be taken as early as possible in the four-year programs.

#### **SOPHOMORE YEAR**

**First Semester:** PSYC 2342; English, 3 hours; Foreign Language, 3 hours; History, 3 hours; Mathematics, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 16 or 17 hours.

**Second Semester:** Psychology, 4 hours; English, 3 hours; History, 3 hours; Political Science, 3 hours; \*Electives, 3 hours; Physical Education or Military Science — Total Credit 17 or 18 hours.

#### **JUNIOR YEAR**

**First Semester:** Psychology, 4 hours; Political Science, 3 hours; \*Electives, 11 hours — Total Credit 18 hours.

**Second Semester:** Psychology, 4 hours; \*Electives, 14 hours — Total Credit 18 hours.

#### **SENIOR YEAR**

**First Semester:** Psychology, 6 hours; \*Electives, 12 hours — Total Credit 18 hours.

**Second Semester:** Psychology, 6 hours; \*Electives, 11 hours — Total Credit 17 hours.

**\*Electives refer to courses which fulfill the "other science," minor, and outside-of-science requirements.**

### **HONORS PROGRAM IN PSYCHOLOGY**

The Department of Psychology offers an Honors Program for students who qualify. Admission to the Honors Program is by faculty invitation. To qualify, the student must have completed 30 hours in residence at UTA, including 10 hours in psychology, with demonstrated academic excellence.

The Honors Student will complete the requirements for a BA or BS degree in psychology, plus PSYC 4321 and 4338.

**REQUIREMENTS FOR A BACHELOR OF ARTS DEGREE  
IN PSYCHOLOGY**

<b>English:</b>	12 hours or the equivalent including six hours of literature.
<b>Foreign Language:</b>	2314 or equivalent in one language.
<b>History:</b>	1311, 1312, or six hours from 3342, 3347, 3360, 3362.
<b>Mathematics:</b>	1302 or 1324 and three additional hours approved by the advisor.
<b>Political Science:</b>	2311 and 2312 or any six hours meeting the legislative requirement.
<b>Science:</b>	12 hours in one science, or six in each of two. Six hours must be science with laboratory.
<b>Electives:</b>	Sufficient hours to complete the total required for the degree.
<b>Major:</b>	30 hours to include 1311, 1315, or 3300; 2441; 2342. Eight hours from the following: 3440, 3441, 3332 and 3142, 3315 and 3144, and 3445. One course from each of the areas, A, B, and C. (4326 may be substituted for one of the courses in area A, B, or C) — A. 3326, 3330, 4313. B. 4316, 4335, 4336, 4341. C. 3307, 3309, 3314, 3315.
<b>Minor:</b>	18 hours of which at least six must be beyond the second year level.
<b>Total:</b>	125 hours, of which at least 36 must be advanced, plus physical education, military science, or marching band as required.

***Suggested Course Sequence:***

**FRESHMAN YEAR**

**First Semester:** PSYC 1311 or 1315; English, 3 hours; Foreign Language, 4 hours; Mathematics, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 14 hours.

**Second Semester:** English, 3 hours; Foreign Language, 4 hours; Mathematics, 3 hours; Electives, 6 hours; Physical Education or Military Science or Marching Band — Total Credit 17 hours.

It is strongly recommended that PSYC 2441 and 2342 be taken as early as possible in the four-year program.

**SOPHOMORE YEAR**

**First Semester:** PSYC 2441; English, 3 hours; Foreign Language, 3 hours; History, 3 hours; Science, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 17 or 18 hours.

**Second Semester:** PSYC 2342; English, 3 hours; Foreign Language, 3 hours; History, 3 hours; Science, 3 hours; Physical Education or Military Science — Total Credit 16 or 17 hours.

**\*JUNIOR YEAR**

**First Semester:** Psychology, 4 hours; Political Science, 3 hours; Science, 3 hours; Electives, 7 hours — Total Credit 17 hours.

**Second Semester:** Psychology, 4 hours; Political Science, 3 hours; Science, 3 hours; Electives, 6 hours — Total Credit 16 hours.

**\*SENIOR YEAR**

**First Semester:** Psychology, 6 hours; Electives, 10 hours — Total Credit 16 hours.

**Second Semester:** Psychology, 6 hours; Electives, 10 hours — Total Credit 16 hours.

**\* Advanced courses to be selected subject to the approval of major advisor.**

## PSYCHOLOGY

### TEACHER CERTIFICATION

Psychology majors who desire certification for teaching at the secondary level must complete the Psychology Teaching Field (see below), fulfill the requirements for a second teaching field, and complete the certification program as prescribed in the Education section of the Catalog.

Students majoring in other subjects who select psychology as a second teaching field should complete the Psychology Teaching Field.

#### **Psychology Teaching Field (26 semester hours)**

1311 or 1315 or 3300, 2441, and 2342;

Four hours from the following: 3440, 3441, 3332 and 3142, 3315 and 3144, 3445;

One course from each of the Areas A, B, and C (4326 may be substituted for one of the courses in Areas A, B, or C).

Three advanced hours approved by the psychology and education advisors.

A. 2310, 3326, 3330, 4313.

B. 4316, 4335, 4336, 4341.

C. 3307, 3309, 3314, 3315.

### MULTIPLE MAJORS

In order to qualify psychology as part of a multiple major, it is only necessary to complete the requirements for a BS major or a BA major in psychology, plus the requirements for another major. The specified requirements in another major BA or BS field will stand in lieu of a minor. Both majors must be either BA or BS. The diploma and transcript will reflect both majors.

### PSYCHOLOGY (PSYC)

*Chairman: Professor Cox*

*Professors Amster, Bernstein, Bowen, Erickson, McCain, Paulus*

*Professor Emeritus Cheavens*

*Associate Professors Baerwaldt, Ickes, Kopp, Martin, Phillips*

*Adjunct Associate Professor Mabli*

*Assistant Professors Bomba, Jackson, Mathews, Nairne*

*Adjunct Assistant Professor Galosy*

#### **The Psychology Department offers a group of courses without prerequisites for non-majors. These courses are PSYC 1301, 2315, 2317, 2319, 3301, and 3312.**

**1301. READING AND STUDY SKILLS** (3-0) 3 hours credit — The objective is increasing speed, comprehension, and flexibility of reading general, academic, and technical literature and the requisite skills in organization of study time, effective note-taking, and writing essay and objective examinations. No major credit in psychology granted; this is a University-wide service course.

**1311. INTRODUCTION TO PSYCHOLOGY AS A SOCIAL SCIENCE** (3-0) 3 hours credit — The methods and content of psychology as a social science; designed for majors in Liberal Arts and Business Administration. Concentration on the understanding of common psychological phenomena. Credit will not be given if a student has received credit in PSYC 1315.

**1315. INTRODUCTION TO PSYCHOLOGY** (3-0) 3 hours credit — The fundamental methods and content of scientific psychology. Concentration on the understanding of basic principles. Credit will not be given for both PSYC 1311 and 1315.

**2310. BEHAVIOR MANAGEMENT AND MODIFICATION** (3-0) 3 hours credit — An overview of existing behavioral control techniques for the remediation and prevention of problem behaviors and for the optimization of normal behaviors in real life settings. Contrasting therapeutic approaches, the ethics of behavior control, and the impact of behaviorism on 20th Century man. Prerequisite: PSYC 1311, 1315, or 3300 or permission of the instructor.

**2313. ENVIRONMENTAL PSYCHOLOGY** (3-0) 3 hours credit — The effect of the social, physical, and ecological features of the environment on human behavior. The effects of crowding, noise, architecture, urban design, and climate. Prerequisite: PSYC 1311, 1315, or 3300. Previously PSYC 3313; credit will be given only once.

**2315. SOCIAL AND ORGANIZATIONAL BEHAVIOR** (3-0) 3 hours credit — A survey of the literature on social behavior ranging from casual social interaction to behavior in complex organizations. Topics covered include impression formation and management, attitude change, interpersonal attraction, social conflict and cooperation, leadership and small group and organizational behavior. Credit may not be earned for both PSYC 2315 and 3315. This course will not be counted for credit toward a psychology degree. Prerequisite: sophomore standing.

**2317. BASIC CONCEPTS IN HUMAN SEXUALITY** (3-0) 3 hours credit — The physiological, psychological, and sociological aspects of human sexuality. Also offered as BIOL 2317, HEED 2317, and SOCI 2317; Credit will be granted for only one of these four courses. Students seeking Certification in Health Education must enroll in HEED 2317. Students seeking credit toward the science requirement must enroll in BIOL 2317.



**2319. ANALYSIS OF PARAPSYCHOLOGY AND OTHER CONTROVERSIAL SCIENCES (3-0)** 3 hours credit — A critical examination of paranormal phenomena including ESP, psychokinesis, and clairvoyance. Emphasis is on the development of analytical skill to evaluate controversial scientific theories such as Velikovsky's, astrology, creationism, and biorhythms.

**2342. EXPERIMENTAL PSYCHOLOGY: RESEARCH METHODOLOGY (2-2)** 3 hours credit — Theoretical and practical problems of research methodology and techniques of reporting research. Prerequisite: PSYC 1311, 1315, or 3300 and 2441. **\$2 lab fee.**

**2441. PSYCHOLOGICAL STATISTICS (3-2)** 4 hours credit — Scientific sampling, measures of central tendency and dispersion, time series, reliability and validity, testing of hypotheses, and linear correlation. Major emphasis on statistical inference and interpretation. Prerequisite: MATH 1302 or equivalent. **\$2 lab fee.**

**3142. LABORATORY IN PHYSIOLOGICAL PSYCHOLOGY (0-3)** 1 hour credit — Research methodologies employed in the study of psycho-physiological processes. Must be taken concurrently with PSYC 3332 except by special permission of department. **\$6 lab fee.**

**3144. SOCIAL PROCESSES LABORATORY (0-3)** 1 hour credit — Laboratory study and field research of social behavior and critical evaluation of methodologies. Prerequisite: PSYC 2342, and PSYC 3315 or concurrent registration. **\$4 lab fee.**

**3300. CONTEMPORARY PSYCHOLOGY (3-0)** 3 hours credit — A survey designed for individuals who have had no previous courses in psychology. The material covered will be approximately that covered in PSYC 1315. The level of work will be that expected of an advanced undergraduate student. Credit cannot be given for this course and PSYC 1311 or 1315. Prerequisite: junior standing.

**3301. PSYCHOLOGY OF HUMAN RELATIONS (3-0)** 3 hours credit — A junior level survey in topics of conflict resolution, interpersonal relations, psychological aspects of criminology and law, influence and attitude change. Prerequisite: junior standing.

**Science 3301 satisfies the science requirement in Bachelor of Arts degree programs. See Science courses listed on the page preceding the Department of Biology material.**

**3302. PSYCHOLOGY OF WOMEN (3-0)** 3 hours credit — The roles, abilities, and personality characteristics of women in our society and how they change with age. Emphasis is on the empirically-measured traits and conditions which are associated with the characteristics of women and which might contribute to change in those characteristics. Both normal and abnormal characteristics are considered, but the emphasis is on facts and not on personality theory. Prerequisite: PSYC 1311, 1315, or 3300. Previously listed as 2302.

**3305. DEVELOPMENTAL PSYCHOLOGY (3-0)** 3 hours credit — An overview of human development and growth from conception through old age, concerned with the physical, behavioral, and social aspects. Prerequisite: PSYC 1311, 1315, or 3300.

**3307. INTRODUCTION TO CLINICAL AND COUNSELING PSYCHOLOGY (3-0)** 3 hours credit — A survey of both counseling and clinical psychology. The student is introduced to psychodiagnostic procedures and the basic approaches of counseling and psychotherapy. Prerequisite: PSYC 1311, 1315, or 3300.

**3309. ABNORMAL PSYCHOLOGY (3-0)** 3 hours credit — A survey of the major forms of psychopathology. Classification, etiology, and treatment of major disorders. Prerequisite: PSYC 1311, 1315, or 3300.

**3312. DRUGS AND BEHAVIOR (3-0)** 3 hours credit — A survey of the psycho-active agents, their therapeutic uses, and social abuses. Alcohol, nicotine, caffeine, narcotics, hallucinogens, stimulants, and tranquilizers. Also listed as HEED 3312; credit will be granted only once. Students seeking Certification in Health Education must enroll in HEED 3312.

**3314. PSYCHOLOGY OF PERSONALITY (3-0)** 3 hours credit — An introduction to the major theories, assessment methods, and research in the field of personality. Prerequisite: PSYC 1311, 1315, or 3300.

**3315. SOCIAL PSYCHOLOGY (3-0)** 3 hours credit — A survey of the theories and research dealing with individual behavior in the social environment. Social influence processes, interpersonal attraction, group behavior, aggression, conformity, and attitude formation and change. PSYC 3144 is an optional laboratory which, when taken concurrently with PSYC 3315, satisfies a portion of the laboratory requirement. Prerequisites: PSYC 1311, 1315, or 3300.

**3316. PSYCHOLOGY OF TESTING (3-0)** 3 hours credit — The student will become familiar with a wide variety of both group and individual tests, through the experiences of actually constructing, taking, scoring, and interpreting tests. Statistical interpretation will be emphasized in terms of validity, reliability, objectivity, item analysis, correlation, and other pertinent criteria. Prerequisites: PSYC 1311, 1315, or 3300, and 2441.

**3326. ANIMAL BEHAVIOR (3-0)** 3 hours credit — A survey of research and theory comparing behavior at various phylectic levels. Also listed as BIOL 3326. Credit will be granted for only one of these courses. Prerequisite: PSYC 1311, 1315, or 3300.

## PSYCHOLOGY

**3330. BEHAVIOR AND MOTIVATION** (3-0) 3 hours credit — Theory and research involving relation of motivation to learning theory, social behavior, personality, and development. Prerequisite: PSYC 1311, 1315, or 3300 and 2441.

**3332. PHYSIOLOGICAL PSYCHOLOGY** (3-0) 3 hours credit — A comprehensive survey of physiological processes and structures underlying human and animal behavior. PSYC 3142 is an optional laboratory which, when taken concurrently with PSYC 3332, satisfies a portion of the laboratory requirement. Prerequisite: PSYC 1311, 1315, or 3300.

**3351. PRACTICUM IN APPLIED BEHAVIOR** 3 hours credit — Students receive supervised experience in the application of behavior modification procedures to real-life problems. Practicum students serve as volunteer staff, working off-campus in a community setting. Provides an opportunity to develop skills in setting behavior objectives, analyzing contingencies of reinforcement, and designing, writing, and implementing practical behavior change programs. Prerequisites: PSYC 2310, 3440, 4318, or equivalent, plus permission of instructor.

**3352. PRACTICUM IN APPLIED BEHAVIOR ANALYSIS** 3 hours credit — Continues 3351. Prerequisite: PSYC 3351 and permission of instructor.

**3353. PSYCHOLOGY OF CREATIVITY AND CREATIVE THINKING** (3-0) 3 hours credit — Research and theory relevant to the traits, attitudes, and abilities which are related to creative functioning with emphasis on the conceptual-cognitive components of creative formation and problem solving. Methods of stimulating creative behavior in individuals and in groups. Relevant research findings provide the substance of the course. Prerequisite: PSYC 1311, 1315, or 3300.

**3373. PSYCHOLOGY OF RELIGION** (3-0) 3 hours credit — An introduction to the use of psychological principles and research to understand religious phenomena and behavior. The main focus will be on objective research conducted from psychological perspectives; the role of development in religious beliefs and practices; religion as a social phenomenon. Prerequisite: PSYC 1311, 1315, or 3300.

**3440. EXPERIMENTAL ANALYSIS OF BEHAVIOR** (3-3) 4 hours credit — A laboratory course examining the basic principles of behavior control and analysis with single animals and automated testing apparatus. Emphasis is placed on individualized, self-paced instruction and creative experimentation. Prerequisite: PSYC 1311, 1315, or 3300 and 2342. **\$6 lab fee.**

**3441. SENSORY AND PERCEPTUAL PROCESSES** (3-3) 4 hours credit — A survey of major phenomena in sensation, perception, and human performance. Laboratory experiments in signal detection, visual masking, memory search, absolute judgments, reaction time, pattern recognition, and division of attention. Prerequisite: PSYC 2441 and 2342. **\$5 lab fee.**

**3445. COGNITIVE PROCESSES** (3-3) 4 hours credit — An analysis of current theory and research. Emphasis is on laboratory study of cognitive processes and on critical evaluation of contemporary theories and methodologies. Prerequisite: PSYC 2342. **\$4 lab fee.**

**4313. THEORIES OF LEARNING** (3-0) 3 hours credit — The factors influencing modifications of behavior, and the underlying theoretical explanations. Prerequisite: PSYC 1311, 1315, or 3300 and 2441.

**4316. MEMORY AND HUMAN LEARNING** (3-0) 3 hours credit — The processes and mechanisms of learning and memory in the human species from both associative and cognitive viewpoints. Prerequisite: PSYC 2342.

**4318. TOPICS IN THE EXPERIMENTAL ANALYSIS OF BEHAVIOR** (3-0) 3 hours credit — A systematic formulation of the principles of individual behavior in Skinnerian terms and the extension of these principles to complex behavior including social interaction, education, and psychopathology. Prerequisite: PSYC 1311, 1315, or 3300.

**4322. TOPICS IN PHYSIOLOGICAL PSYCHOLOGY** (3-0) 3 hours credit — A survey of research and concepts related to specific areas of physiological psychology. Prerequisite: PSYC 1311, 1315, or 3300, and 3332 or BIOL 2357 or permission of instructor.

**4326. THE HISTORY OF PSYCHOLOGY** (3-0) 3 hours credit — The evolution of psychology as a science, up to and including contemporary developments. Prerequisite: nine hours of psychology.

**4327. TOPICS IN PERCEPTION** (3-0) 3 hours credit — The theoretical and empirical foundations of contemporary research in perception, sensation, and human performance. Primary emphasis will be upon those topics studied in PSYC 3441. Prerequisite: PSYC 3441.

**4335. THINKING AND INFORMATION PROCESSING** (3-0) 3 hours credit — The way in which information is processed by the brain and the role that this processing plays in thinking, reaction time, memory, attention, mental operations, consciousness, and problem solving. Prerequisite: PSYC 1311, 1315, or 3300.

**4336. PSYCHOLOGY OF LANGUAGE** (3-0) 3 hours credit — A survey of psychological research and theories of language, verbal behavior, and linguistic and non-linguistic communication. Prerequisite: PSYC 1311, 1315, or 3300.

**4341. PSYCHOLOGY OF JUDGMENT AND CHOICE** (3-0) 3 hours credit — A survey of research and theory on the errors of intuitive judgment and how formal decision methods improve choices. Prerequisite: PSYC 2441.

**4350. INTRODUCTION TO PSYCHOPHARMACOLOGY** (3-0) 3 hours credit — An introduction to the chemical agents employed in research and treatment of behavior, the research methods for drug evaluation, and a survey of the uses of behaviorally active drugs and their actions. Prerequisites: PSYC 3332, CHEM 1301, or equivalent, or permission of instructor.

**4361. THE SENSES** (3-0) 3 hours credit — A survey of the sensory receptors of man and animals, their structure, function, and relationship to behavior, including vision, hearing, taste, smell, the skin and muscle senses, and motion. Prerequisite: PSYC 1311, 1315, or 3300.

**4121, 4221, 4321. READINGS IN PSYCHOLOGY** (Variable credit from 1 to 3 semester hours as arranged). Topics arranged on an individual basis. Performance may be assessed by oral exam, written test, or review paper as arranged. Prerequisite: permission of the instructor.

**4181, 4281, 4381. RESEARCH IN PSYCHOLOGY** (Variable credit 1 to 3 semester hours as arranged). Research problems arranged on an individual basis, to be conducted by the student, and written in publishable journal format. Prerequisite: permission of instructor.

**4338. HONORS THESIS** (3-0) 3 hours credit — Students may take this course only at the invitation of the department. Consists of a research project of a type and level which would be publishable in one of the psychological journals. Particular emphasis is placed on independent work by the student.

**2391, 3391, 4391. CURRENT TOPICS IN PSYCHOLOGY** (3-0) 3 hours credit — A lecture-survey on a topic of interest to students and faculty. Topics, texts, and grading procedures will be announced prior to registration. Prerequisites may vary.





# Institute of URBAN STUDIES

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The activities of the Institute of Urban Studies can be viewed under four broad functional areas: graduate instruction in urban affairs and related research; criminal justice graduate and undergraduate instruction and related research; applied research, services, and training provided public and private groups and officials; and city and regional planning.

Students in the criminal justice program at the undergraduate level, in addition to the standard classroom approach, are permitted to engage in participant-observer situations with several police departments in the Metroplex, the Juvenile Detention Centers of Tarrant and Dallas Counties, the Federal Correctional Institution in Fort Worth, and others.

The applied research activities of the institute are viewed as important adjuncts to the instruction programs. Students of urban affairs and criminal justice may be involved in research and service projects that are relevant to contemporary urban problems. A wide variety of research materials from current and past research projects is available to students, and members of the research staff serve as resource specialists to students. The wide contacts of institute staff members with public officials, agencies, and private groups involved in urban affairs and criminal justice are helpful in arranging internships.

**CITY AND REGIONAL PLANNING (CIRP)**

The City and Regional Planning Division offers eight upper division courses.\* Students in other degree programs, such as economics, journalism, history, political science, geology and others, may minor in City and Regional Planning by selecting any combination of courses to meet their credit hour requirements. Also, students may enroll in these courses for elective credit.

*Professor Anderson*

*Associate Professor Goldsteen*

*Assistant Professors Anjomani, Mills-Erickson*

**3301. SOCIAL AND CULTURAL ASPECTS OF PLANNING (3-0)** 3 hours credit — The partitioning of cities into social and cultural sectors in relation to how to plan for life cycle, lifespan, and social class differences. Study of people's values, concepts of neighborhood, social-psychology and sociology of group processes, cultural differences between groups, etc., will be related to the physical dimensions of cities.

**3302. INTERNATIONAL PLANNING AND REGIONAL DEVELOPMENT (3-0)** 3 hours credit — Planning in developing countries will be studied in relation to concepts of regional development, social change, and national policy-making.

**3303. PLANNING, POLICY-MAKING AND SOCIAL CHANGE (3-0)** 3 hours credit — City and metropolitan area development including political, economic, and institutional aspects of planning; and selected substantive issues: land use, environmental, transportation, and social planning; housing, managing urban growth, and regional and statewide planning.

**4304. VISUAL COMMUNICATION AND GRAPHIC PRESENTATION (2-3)** 3 hours credit — A laboratory course in physical-spatial design, and exercise in mapping, charting, graphing, and information displays. The planning design process and the impact of project scale patterns and physical form will be emphasized.

**4305. PRINCIPLES OF ENVIRONMENTAL LAW (3-0)** 3 hours credit — Historical and legal roots to environmental pollution. Development of environmental legislation and judicial decisions regarding air and water quality, energy, wilderness areas and federal lands, noise pollution, solid waste and recovery, coastal zone protection.

**4306. ECONOMICS OF CITIES AND REGIONS (3-0)** 3 hours credit — Economic principles and problems in urban and regional analysis will be studied and related to economic policy from a planning perspective. Topics include the urban economics of transportation, housing, crime, urban growth and structure, real estate, etc.

**4391. STUDIES IN CITY AND REGIONAL PLANNING (3-0)** 3 hours credit — Advanced studies, on an individual basis, in various subjects of city and regional planning. May be repeated for credit. Prerequisite: consent of the instructor.

**4395. SEMINAR IN CITY AND REGIONAL PLANNING (3-0)** 3 hours credit — Readings and discussions of special topics in city and regional planning. May be repeated for credit. Prerequisite: consent of the instructor.

\* In addition to the City and Regional Planning courses listed above, ARCH 4306, URBAN DESIGN THEORY, and ARCH 4307, THEORY OF CITY PLANNING may be used toward the minor.

**URBAN AND REGIONAL AFFAIRS (URBA)**

The Urban and Regional Affairs Division offers two upper division courses. Students may enroll in these courses for elective credit.

*Professors Cole, Cornehls, Geisel, Taebe*

*Associate Professors Rosentraub, Seidel, Wyman*

*Assistant Professor Tees*

**3300. AN INTERDISCIPLINARY APPROACH (3-0)** 3 hours credit — An overview of urban studies, surveying the major features of cities as political, economic and social entities. The analysis of social policies as these affect the city.

**3330. GEOGRAPHY OF URBAN AREAS (3-0)** 3 hours credit — The growth and development of cities, with major emphasis on their spatial and ecological characteristics.

## CRIMINAL JUSTICE

### REQUIREMENTS FOR A BACHELOR OF SCIENCE DEGREE IN CRIMINAL JUSTICE

<b>English:</b>	1301, 1302, and six hours of literature.
<b>Political Science:</b>	2311, 2312.
<b>History:</b>	1311, 1312.
<b>Mathematics:</b>	Six semester hours.
<b>Psychology:</b>	1311, plus three hours on advice of department.
<b>Science:</b>	12 hours in one science or six in each of two. Six hours must be science with laboratory.
<b>Sociology:</b>	1311, plus three hours on advice of department.
<b>Communication:</b>	Six hours of speech, journalism, or drama on advice of department.
<b>Electives:</b>	Sufficient to fulfill the requirements for the degree.
<b>Major:</b>	36 hours to include 2321 or other approved research statistics course; 2310; 2311; or 3334; 2315; or 3335; at least 18 hours must be advanced. No more than 42 hours of criminal justice will be accepted toward the degree. * Any courses which are joint offerings of criminal justice and any other department must be taken for criminal justice credit by criminal justice majors.
<b>Minor:</b>	
<b>Option I:</b>	18 hours in any subject; at least six must be advanced.
<b>Option II:</b>	12 hours in each of any two subjects; at least three in each subject must be advanced.
<b>Total:</b>	124 hours, at least 36 of which must be advanced, plus physical education or military science or marching band as required.

\*The department may accept up to but no more than 21 hours of transfer credit in the area of criminal justice, police science, or law enforcement.

#### **Suggested Course Sequence:**

##### **FRESHMAN YEAR**

**First Semester:** ENGL 1301; Mathematics, 3 hours; Psychology, 3 hours; HIST 1311; Communication, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 16 hours.

**Second Semester:** ENGL 1302; Mathematics, 3 hours; Communication, 3 hours; HIST 1312; Elective, 3 hours; Physical Education or Military Science — Total Credit 16 hours.

##### **SOPHOMORE YEAR**

**First Semester:** English (2000 literature course), 3 hours; Science, 3 or 4 hours; POLS 2311; SOCI 1311; Major, 3 hours; Physical Education or Military Science or Marching Band — Total Credit 16 or 18 hours.

**Second Semester:** English (2000 literature course), 3 hours; Science, 3 or 4 hours; POLS 2312; Sociology, 3 hours; Major, 3 hours; Physical Education or Military Science — Total Credit 16 to 18 hours.

##### **JUNIOR YEAR**

**First Semester:** Science, 3 or 4 hours; Major, 6 hours; Minor, 3 hours; Elective, 3 hours — Total Credit 15 or 16 hours.

**Second Semester:** Psychology, 3 hours; Science, 3 or 4 hours; Major, 6 hours; Minor, 3 hours — Total Credit 15 or 16 hours.

##### **SENIOR YEAR**

**First Semester:** Major, 9 hours; Minor, 3 hours; Elective, 3 hours — Total Credit 15 hours.

**Second Semester:** Major, 9 hours; Minor, 3 hours; Elective, 3 hours — Total Credit 15 hours.

**CRIMINAL JUSTICE (CRJU)**

*Professors Butcher, Stevens*

*Associate Professors Almore, MacKenna (program director)*

*Assistant Professors Eyres, Smith, Sullenberger*

*Senior Lecturer Courtney*

**1316. CONTEMPORARY PROBLEMS IN CRIMINAL JUSTICE** (3-0) 3 hours credit — Current significant problems faced by various agencies in the criminal justice system and solutions for these problems. Current materials on criminal justice activities and up-to-date sources of information. A criminal justice major who has completed 24 hours or more of criminal justice is not eligible to take this course. May be used as SOCI 1316 or CRJU 1316, but not both.

**2134. VOLUNTEER PROGRAMS AND CRIMINAL JUSTICE AGENCIES** (1-0) 1 hour credit — The utilization and history of volunteer programs in criminal justice agencies. Emerging trends in volunteerism, motivational dynamics of volunteerism and organization and administration of volunteer programs. Students participate in field observation of community programs.

**2310. CRIME IN AMERICA** (3-0) 3 hours credit — An introduction to the problem of crime in the United States, including historical perspectives, societal factors affecting crime, reporting systems, crime trends, characteristics of specific crimes and forecasts for the future. Formerly listed as CRJU 4313. Credit cannot be given for both 4313 and 2310.

**2311. INTRODUCTION TO LAW ENFORCEMENT** (3-0) 3 hours credit — History, development, and philosophy of law enforcement in a democratic society; introduction to agencies involved in the administration of criminal justice; career orientation.

**2312. POLICE ORGANIZATION AND ADMINISTRATION** (3-0) 3 hours credit — Principles of organization and management as applied to law enforcement agencies; introduction to concepts of organizational behavior.

**2313. POLICE ROLE IN CRIME AND DELINQUENCY** (3-0) 3 hours credit — Study of deviant behavior and current criminological theories, with emphasis on police applications; crime prevention and the phenomenon of crime as it relates to juveniles.

**2314. CRIMINAL INVESTIGATION** (3-0) 3 hours credit — Introduction to the fundamentals of criminal investigation, including theory and history, conduct at crime scenes, collection and preservation of evidence.

**2315. LEGAL ASPECTS OF LAW ENFORCEMENT** (3-0) 3 hours credit — History and philosophy of modern criminal law, including the structure, definition, and application of statutes and leading case law; the elements of crimes and penalties; general provisions of the Penal Code. Credit will be granted for CRJU 2315 or 3335, but not both.

**2316. CRIMINAL PROCEDURE AND EVIDENCE** (3-0) 3 hours credit — Introduction to the rules governing the admissibility of evidence and types of evidence; criminal procedure in various courts; review of the Texas Code of Criminal Procedure, including laws of arrest, search, and seizure, and leading case law on each topic.

**2317. POLICE-COMMUNITY RELATIONS** (3-0) 3 hours credit — The role of the individual officer in achieving and maintaining positive public response; inter-group relations and public information.

**2321. INTRODUCTION TO CRIMINAL JUSTICE RESEARCH AND STATISTICS** (3-0) 3 hours credit — Basic methods of setting up a research project, including the collection and analysis of data. Designed to make the student a more knowledgeable reader of the literature as well as to introduce basic skills in research and statistics.

**2323. LAW AND THE COMMUNITY** (3-0) 3 hours credit — The uses and operations of the law with regard to non-criminal matters of community concern, generally including but not limited to consumer protection, poverty law, landlord-tenant law, civil commitment, and urban law.

**2330. INTRODUCTION TO TRAFFIC MANAGEMENT AND CONTROL** (3-0) 3 hours credit — The history of traffic control theory and practice with an emphasis on engineering, education, and enforcement. Traffic and transportation history, accident history, traffic elements, traffic regulation, accident investigation, problem documentation and environmental modification, and utilization of traffic control devices.

**All advanced-level criminal justice courses require junior standing or permission of the instructor.**

**3307. INTRODUCTION TO SECURITY SYSTEMS** (3-0) 3 hours credit — Historical development of private security, its form and practice in modern society. Emphasis on three major divisions within the field: industrial, commercial and governmental security organizations and issues.

**3313. CRIMINOLOGY** (3-0) 3 hours credit — General survey of the nature and causes of crime; the processes of criminal maturation and behavior; punishment and penal systems; and correctional treatment and crime prevention. May be used as SOCI or CRJU 3313, but not both. Prerequisite: SOCI 1311 or 1312, or permission of the instructor.

## **CRIMINAL JUSTICE**

**3334. INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM** (3-0) 3 hours credit — An overview of the entire criminal justice system, with emphasis on the police, probation and parole, the courts, and corrections. May be used as CRJU or POLS 3334, but credit will be given in only one area.

**3335. ADVANCED CRIMINAL LAW** (3-0) 3 hours credit — The substantive legal provisions of criminal justice; major crime under the legal system, emphasis upon social values. Both Texas and Anglo-American criminal law examined and compared. May be used as CRJU or POLS 3335, but credit will be given in only one area. Credit will be granted for CRJU 2315 or 3335, but not both.

**3336. POLITICS AND POLICE LEADERSHIP** (3-0) 3 hours credit — Examines the principles of administration, management, politics and leadership with emphasis on their applicability to law enforcement planning, organization, direction, control and personnel management. This course may be used as CRJU or POLS 3336, but not both.

**3337. ADVANCED CRIMINAL PROCEDURE** (3-0) 3 hours credit — The processes involved in the criminal justice system; the rules of evidence; the laws of arrest, search and seizure; and the judicial process from offense to conviction.

**3339. ADVANCED CRIMINAL EVIDENCE** (3-0) 3 hours credit — The basic laws of evidence as utilized in the American judicial system, with special emphasis on evidentiary aspects of criminal law and the administrative role-playing involved in developing and utilizing evidentiary matters.

**4301. THE AMERICAN JUDICIAL SYSTEM** (3-0) 3 hours credit — Federal, state, and local judicial systems, with special emphasis on state trial courts having criminal jurisdiction. Court structure and function, court management, and judicial behavior.

**4302. CONSTITUTIONAL ISSUES AND THE CRIMINAL JUSTICE SYSTEM** (3-0) 3 hours credit — Constitutional issues dealing with operations and activities of criminal justice agencies and their personnel. Right to counsel, capital punishment, due process of law, and other issues that arise under the provisions of the United States and state constitutions.

**4303. JAILS AND DETENTION FACILITIES** (3-0) 3 hours credit — History and development of jails and detention facilities, principles of jail organization and management, functional analysis of activities, service delivery systems, confinement alternatives.

**4304. CORRECTIONS AND PENOLOGY** (3-0) 3 hours credit — Examination, analysis, and evaluation of existing corrections systems and their prognosis. Independent study, research, observation, and participation. May be used as CRJU or SOCI 4304, but credit will be given in only one area.

**4305. PAROLE AND PROBATION** (3-0) 3 hours credit — The history of parole and probation, the theories of human behavior on which parole and probation are based, contemporary practices in parole and probation and trends in these areas.

**4307. INDUSTRIAL SECURITY** (3-0) 3 hours credit — Security problems unique to industrial and manufacturing plant protection; physical security, Defense Department security requirements, employee identification, fire protection, disaster control, use of protective services, administering industrial security environment.

**4308. COMMERCIAL SECURITY AND LOSS PREVENTION** (3-0) 3 hours credit — Problems and counter measures associated with theft in the business world. Will consider external theft, various forms of white collar, computer, and employee crime. Emphasis on techniques in merchandise handling, receiving, shipping, and warehousing to improve physical security and crime detection in private companies.

**4309. PRIVATE SECURITY ADMINISTRATION** (3-0) 3 hours credit — Essentials of governmental and proprietary security development and program planning; including personnel recruitment and training, developing and conducting security audits, records and information protection, and general applications of modern management techniques to security organization.

**4311. PERSONALITY THEORY AND CRIMINAL BEHAVIOR** (3-0) 3 hours credit — The basic theoretical approaches to personality with emphasis on practical application of established principles to predict and control problem human behavior. The specific behavior problems encountered in law enforcement, corrections, detention centers, probation, and parole.

**4312. COUNSELING AND INTERPERSONAL COMMUNICATION** (3-0) 3 hours credit — The basic purposes and techniques of counseling and the interpersonal skills required to enhance communication and to effect positive behavioral change. Special attention to exemplary and experimental programs aimed at promoting long range social adjustment. Experiential learning through case studies and situational exercises.

**4315. ORGANIZED AND WHITE COLLAR CRIME** (3-0) 3 hours credit — The myth and/or reality of organized crime with emphasis upon the development of secret societies. Local, state, and congressional investigations into the structure of criminal activity. White collar crime examined as a developing phenomenon of modern society.

**4316. THE JUVENILE OFFENDER** (3-0) 3 hours credit — The juvenile offender in relation to the various aspects of the criminal justice system including law enforcement agencies, judicial processes, and correctional programs; efforts to divert the juvenile offender from the system. Prerequisite: CRJU 2313 or 3312.

**4317. PSYCHOLOGICAL TECHNIQUES IN LAW ENFORCEMENT AND CORRECTIONS** (3-0) 3 hours credit — An introduction to a variety of psychological techniques utilized by correction and law enforcement personnel, including interviewing, interrogation, modeling, self-disclosure,



group and behavioral techniques. Experiential learning provided through case studies and situational experiences. Prerequisite: CRJU 4312 or permission of the instructor.

**4320. ADVANCED CRIMINAL JUSTICE PLANNING AND MANAGEMENT** (3-0) 3 hours credit — Criminal justice planning, management techniques, organizational research, project management, grants administration, project proposal formulation and evaluation. Current innovative techniques used in criminal justice agencies, the role of information systems, and experimental programs under development.

**4321. CRIME AND OPERATIONS RESEARCH** (3-0) 3 hours credit — Advanced statistics and statistical techniques in the study of crime, criminal justice agency operations, and general criminal justice research. The analysis of variance and correlational research and their application to crime and criminal justice data bases. Utilization of operational information systems in criminal justice and special data-gathering techniques. Prerequisite: CRJU 2321 or permission of the instructor.



- 4322. ADMINISTRATIVE LAW** (3-0) 3 hours credit — Regulatory boards setting governmental control over various segments of the criminal justice system and the nature and scope of judicial review exercised by courts over such segments. The particular problems involved in the doctrine of separation of powers, delegation of powers, and the nature of the judicial and administrative functions.
- 4323. MUNICIPAL CORPORATIONS** (3-0) 3 hours credit — The nature and function of municipal corporations, the core concept of the city in American law. The legal powers, processes, rights, and restrictions of municipalities, with emphasis upon the law of Texas in this field.
- 4324. URBAN GOVERNMENT LAW** (3-0) 3 hours credit — The legal aspects involved in government of metropolitan areas, stressing the special problems arising from mass urbanization and the entanglements ensuing from the interrelationships of multiple levels of legal control of urban affairs. Texas issues are emphasized.
- 4340. CRIMINALISTICS I** (3-0) 3 hours credit — Criminalistics with particular attention given to scientific crime detection methods, the crime laboratory, and methods and devices used in the examination and analysis of evidence, including trace evidence, fingerprints, bloodstains, and sexual assault evidence. Formerly listed as CRJU 4306. Credit cannot be given for both 4306 and 4340.
- 4341. CRIMINALISTICS II** (3-0) 3 hours credit — Criminalistics with particular attention given to firearms evidence, including bullets, cartridges, and other components, firearms, gunshot residues, muzzle distance determinations, and other evidence related to firearms investigation.
- 4342. CRIME SCENE SEARCH METHODS** (3-0) 3 hours credit — Methods and techniques employed in scientifically oriented identification, collection, and preservation of physical evidence in criminal investigation; actual experience in fingerprint processing, casting of impressions, photography, collection of items, processing of a mock crime scene, and documentation.
- 4380. COMPARATIVE CRIMINAL JUSTICE SYSTEMS I** (3-0) 3 hours credit — Provides the student with a structured research and study tour outside the United States involving one or more countries. Intensive study and analysis of the law enforcement, judicial and correctional institutions in other countries. Requires completion of on-site research projects under supervision.
- 4381. COMPARATIVE CRIMINAL JUSTICE SYSTEMS II** (3-0) 3 hours credit — Readings and research in comparative criminal justice institutions in conjunction with CRJU 4380. Completion of extensive research project involving field research and readings on criminal justice systems in countries visited.
- 4385. HISTORY OF POLICE IN EUROPE AND AMERICA, 1750-PRESENT** (3-0) 3 hours credit — A survey of the concepts and institutions of police in various Western societies. The growth of police in England, Ireland, France and Russia, as well as the United States, with special emphasis on the various attitudes toward police, the different institutional structures, and the use of police in each society. Can be taken for credit as HIST 4385 or CRJU 4385; credit will be granted only once. Formerly listed as HIST/CRJU 4342. Credit cannot be received for both 4342 and 4385.
- 4391, 4291, 4191. CONFERENCE COURSE IN CRIMINAL JUSTICE** (Variable credit) — Directed individual study; research and study on a topic agreed upon by instructor and student. No more than six hours credit will be granted for conference courses in criminal justice. Prerequisite: permission of the instructor.
- 4392. SELECTED TOPICS IN CRIMINAL JUSTICE** (3-0) 3 hours credit — Various topics and problems related to law enforcement and criminal justice. May be repeated for credit as the topics vary, but no student may take more than 12 semester hours of Selected Topics without permission of advisor.
- 4393. SENIOR SEMINAR IN CRIMINAL JUSTICE** (3-0) 3 hours credit — Literature and materials dealing with the subject of criminal justice; extensive reading, discussion sessions, and research required. Limited to students in their final year of undergraduate work who have a high overall grade point average and who plan to undertake further study in graduate programs or professional schools. Prerequisite: permission of instructor or undergraduate advisor.
- 4394, 4694. INTERNSHIP IN CRIMINAL JUSTICE** (3 or 6 hours credit as arranged) — Provides the student with an opportunity to apply academic training to practical situations by serving for a specified number of hours as participant-observer in a criminal justice agency. May be taken for a total of six semester hours. Internships must be arranged with internship supervisor in the semester prior to enrolling for this course. Prerequisite: permission of the instructor.

# AEROSPACE STUDIES

## (Air Force ROTC)

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The University of Texas at Arlington offers the opportunity to earn a commission as a lieutenant in the Air Force through participating in the AFROTC program. Students enroll for and take UTA courses which are conducted by Air Force personnel at Texas Christian University in Fort Worth.

**Qualifications** — A student enrolling in the program must be a citizen of the United States, be of sound physical condition and moral character, be no older than 34 upon commissioning, and be a full-time student meeting University academic standards.

**Curriculum** — Two programs are offered, one requiring four years to complete, and the other, two years. The four-year program is composed of the General Military Course (GMC) for freshmen and sophomores and the Professional Officer Course (POC) for juniors and seniors. The two-year program is composed of POC courses only. Students with prior military service, service academy enrollment, or junior ROTC service may qualify for GMC credit.

**Leadership Laboratory** — Cadets develop and improve leadership skills by participating in the activities and functions of the Air Force ROTC Cadet Corps for one hour each week. All students must schedule Leadership Laboratory.

**Scholarships** — The Air Force offers 4-, 3<sup>1</sup>/<sub>2</sub>-, 3-, 2<sup>1</sup>/<sub>2</sub>-, and 2-year scholarships for tuition, fees, and books. Scholarship students and all POC cadets receive a \$100 per month nontaxable allowance. High school students wishing to compete for four-year scholarships should contact their principal or counselor for application materials, or call the AFROTC department at TCU at (817) 921-7461.

**Flight Instruction** — Cadets who qualify for Air Force pilot training participate in the Flight Instruction Program during their first year of the POC. This course consists of a ground school taught by Air Force officers and 13 hours of flight training at a Federal Aviation Agency-approved flight school.

### COURSE SUBSTITUTION

Air Force ROTC may be taken along with or in lieu of physical education or marching band.

### AEROSPACE STUDIES/AFROTC (MSAS)

#### GENERAL MILITARY COURSE (GMC)

**1121. THE AIR FORCE TODAY (1-1)** 1 hour credit — The doctrine, mission, and organization of the United States Air Force; United States strategic offensive and defensive forces and their missions and functions. One class hour plus one hour of Leadership Laboratory per week.

**1122. THE AIR FORCE TODAY (1-1)** 1 hour credit — A continuation of 1121.

**2121. THE DEVELOPMENT OF AIR POWER (1-1)** 1 hour credit — Traces concepts of employment of air power and focuses upon factors which have prompted research and technological change. One class hour plus one hour of Leadership Laboratory per week.

**2122. THE DEVELOPMENT OF AIR POWER (1-1)** 1 hour credit — A continuation of 2121.

#### PROFESSIONAL OFFICER COURSE (POC)

**3301. MANAGEMENT AND LEADERSHIP (3-1)** 3 hours credit — An integrated management course emphasizing the individual as a manager and leader. Individual motivational and behavioral processes, leadership, communication, and group dynamics are emphasized. Three class hours, plus one hour Leadership Laboratory per week.

**3311. MANAGEMENT AND LEADERSHIP (3-1)** 3 hours credit — A continuation of 3301.

**4301. NATIONAL SECURITY FORCES IN CONTEMPORARY AMERICAN SOCIETY (3-1)** 3 hours credit — A course conceptually focused on the Armed Forces as an integral element of society, with an emphasis on the broad range of American civil-military relations, and the environmental context in which United States defense policy is formulated and implemented. Three class hours, plus one hour of Leadership Lab per week.

**4311. NATIONAL SECURITY FORCES IN CONTEMPORARY AMERICAN SOCIETY (3-1)** 3 hours credit — A continuation of 4301.



open market for bank regulation

... abundance of bank failures (with  
... failure pattern & confidence in banking  
... industry (except with confidence in  
... bank & a degree of bank success)  
... (for a... policy)

# FACULTY

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(Year in parentheses indicates year of initial employment.)

- ACKER, BERTIE N., Associate Professor of Foreign Languages (1965). B.A., Texas Woman's University, 1943; M.A., Southern Methodist University, 1957; Ph.D., University of Texas at Austin, 1971.
- ADAMS, DUANE A., Professor of Foreign Languages (1960). B.A., University of Nebraska, 1947; M.A., 1949; Ph.D., Louisiana State University, 1963.
- ALLEN, LEONARD GRANT, Adjunct Assistant Professor of Social Work (1975). B.A., University of North Carolina, 1965; M.S.W., Louisiana State University, 1972.
- ALLISON, ROBERT D., Adjunct Associate Professor in Biomedical Engineering Program (1976). B.A., Hardwick College, 1954; M.S., Wayne State University College of Medicine, 1960; Ph.D., 1962.
- ALMORE, MARY G., Associate Professor of Urban Studies (1972). B.S., Florida State University, 1955; M.A., 1956; M.S., 1958; Ph.D., Texas Christian University, 1971.
- AMSTER, HARRIETT, Professor of Psychology (1973). A.B., Bryn Mawr College, 1950; M.A., Clark University, 1954; Ph.D., 1957.
- ANDERS, EVAN M., Assistant Professor of History (1982). B.A., University of Texas at Austin, 1968; M.A., 1970; Ph.D., 1978.
- ANDERSON, ANTHONY C., Associate Professor of Art (1976). B.A., Florida State University, 1968; M.A., 1970.
- ANDERSON, EUGENE W., Professor and Chairman of the Department of Physical Education (1978). B.S., Fort Hays Kansas State University, 1954; M.S., 1959; Ed.D., Arizona State University, 1970.
- ANDERSON, FRANK W., Associate Professor of Urban Studies and Director for Research (1973). B.A., Western Reserve University, 1949; M.A., University of Washington, 1953; Ph.D., 1958.
- ANDERSON, R. BRUCE W., Associate Professor of Sociology (1973). A.B., Stanford University, 1961; M.A., Northwestern University, 1965; Ph.D., Duke University, 1970.
- ANGUIZOLA, GUSTAVE, Assistant Professor of History (1966). B.A., Evansville University, 1947; M.A., Indiana University, 1948; M.S., Michigan State University, 1953; Ph.D., Indiana University, 1954.
- ANJOMANI, ARDESHIR, Assistant Professor of City and Regional Planning (1979). M.Arch., University of Tehran, Iran, 1968; M. Planning, University of Southern California, 1976; Ph.D., 1979.
- ANTONIADES, ANTHONY C., Professor of Architecture (1973). B.S., National Technical University, Athens, Greece, 1965; M.S., Columbia University, 1966; M.S., 1968; M.Ph., University of London, 1972. Registered Architect.
- APILADO, VINCENT P., Professor and Chairman of the Department of Finance and Real Estate (1980). B.S., University of Portland, 1959; M.B.A., University of Oregon, 1966; Ph.D., University of Michigan, 1970.
- ARDAY, DONALD, Assistant Professor of Art (1981). B.F.A., Cleveland Institute of Art, 1978; M.F.A., Syracuse University, 1980.
- ARGENTO, V.K., Senior Lecturer of Civil Engineering (1977). B.S., San Diego State College, 1964; M.S., University of Texas at Dallas, 1976. Professional Engineer.
- ARMSTRONG, ANDREW T., Associate Professor of Chemistry (1968). B.S., North Texas State University, 1958; M.S., 1959; Ph.D., Louisiana State University, 1967.
- ARMSTRONG, J. CLYDE, Associate Professor of Civil Engineering (1972). B.S., Texas A&M University, 1955; B.S., 1961; M.S., 1962; Ph.D., 1967. Professional Engineer.
- ARNOTT, HOWARD J., Professor of Biology and Dean of the College of Science (1974). A.B., University of Southern California, 1952; M.S., 1953; Ph.D., University of California at Berkeley, 1958.

## FACULTY

- ARRENDELL, CHARLES, *Professor and Chairman of the Department of Communication (1981)*. B.A., *Wayland College, 1959*; M.A., *University of Iowa, 1965*; Ph.D., *University of Texas at Austin, 1969*.
- ATWELL, KATHLEEN, *Specialist In Nursing (1980)*. B.S.N., *University of Maryland, 1968*; M.S.N., *Texas Woman's University, 1977*. Registered Nurse.
- AYRES, RAY, *Associate Professor of Management and Director of Center for Professional and Executive Development (1981)*. B.S., *Virginia Commonwealth University, 1954*; M.S., 1969; Ph.D., *University of Maryland, 1974*.
- AZIZ, ABDUL, *Lecturer in Finance and Real Estate (1982)*. B.S., *Punjab University, India, 1955*; M.B.A., *Karachi University, India, 1969*.
- BACON, JOHN D., *Associate Professor of Biology (1975)*. B.S., *Sul Ross State University, 1966*; M.S., *Texas A&M University, 1970*; Ph.D., *University of Texas at Austin, 1975*.
- BAERWALDT, JAMES W., *Associate Professor of Psychology (1966)*. B.A., *Wesleyan University, 1961*; M.A., *University of Michigan, 1965*; Ph.D., 1968.
- BAKER, DOROTHY D., *Assistant Professor of Music (1972)*. B.A., *Tulane University, 1955*; M.M., *Southern Methodist University, 1964*.
- BAKER, J. HOWARD, *Lecturer in Systems Analysis (1979)*. B.S. B.A., *F.P. Samford University, 1965*; M.Acc., *University of Southern California, 1975*.
- BAKER, R.C., *Associate Professor of Systems Analysis (1972)*. B.A., *University of Texas at Austin, 1964*; Ph.D., *Texas A&M University, 1971*.
- BAKER, W.A., *Professor of Chemistry and Vice President for Academic Affairs (1971)*. B.S., *Texas A&I University, 1955*; Ph.D., *University of Texas at Austin, 1959*.
- BALDRIDGE, WILLIAM R., *Assistant Professor of Music (1982)*. B.M.Ed., *East Texas State University, 1966*; M.M., 1972; Ph.D., *North Texas State University, 1981*.
- BARBATO, H. LEA, *Specialist in Nursing (1981)*. B.S.N., *University of Texas at Arlington, 1976*; M.S.N., *University of Texas at Arlington, 1981*. Registered Nurse.
- BARKER, CALVIN L. R., *Professor of Mechanical Engineering (1960)*. B.S., *University of Texas at Austin, 1953*; M.S., *California Institute of Technology, 1954*; Ph.D., 1958. Professional Engineer.
- BARNES, ELLEN SUE, *Specialist in Nursing (1976)*. B.S.N., *University of Missouri, 1960*; M.Ed., *Louisiana State University, 1972*. Registered Nurse.
- BARNICK, BARBARA, *Specialist in Physical Education (1982)*. B.S., *Miami University, 1980*; M.A., 1981.
- BARRETT, MARJIE C., *Assistant Professor of Social Work (1978)*. B.A., *Texas Christian University, 1959*; M.S.S.W., *University of Texas at Austin, 1962*; Ph.D., *Texas Woman's University, 1978*.
- BASCOM, BURTON W., *Adjunct Assistant Professor of Linguistics (1977)*. Th.B., *Bible Institute of Los Angeles, 1943*; B.A., *Pasadena College, 1953*; Ph.D., *University of Washington, 1962*.
- BASTIEN, JOSEPH W., *Associate Professor of Sociology (1977)*. B.A., *Maryknoll College, 1958*; M.E., *State University of New York, 1963*; M.D., 1963; M.A., *Cornell University, 1971*; Ph.D., 1973.
- BEAUDRY, HARRY R., *Associate Professor of English (1966)*. A.B., *Rice University, 1952*; M.A., *Boston University, 1956*; Ph.D., *Duke University, 1968*.
- BEEAMAN, WILLIAM E., *Associate Professor of Mathematics (1955)*. B.S., *North Texas State University, 1939*; M.S., 1940.
- BELLION, EDWARD, *Associate Professor of Chemistry (1970)*. B.Sc., *University of Leeds, 1965*; Ph.D., 1968.
- BENDOR-SAMUEL, DAVID H., *Adjunct Assistant Professor of Linguistics (1977)*. B.D., *University of London, 1958*; Ph.D., 1966.
- BENHAM, ANN H., *Associate Professor of Chemistry (1960)*. B.S., *University of Michigan, 1945*; M.S., 1947.
- BENNETT, PEGGY D., *Assistant Professor of Music (1981)*. B.S., *Ball State University, 1971*; M.A., 1975; Ph.D., *North Texas State University, 1981*.
- BERNFELD, STEPHEN R., *Professor of Mathematics (1975)*. B.S., *Rensselaer Polytechnic Institute, 1965*; Ph.D., *University of Maryland, 1969*.

- BERNSTEIN, BARTON E., *Adjunct Associate Professor of Social Work* (1974). B.A., Drake University, 1951; J.D., Boston University, 1953; M.L.A., Southern Methodist University, 1971.
- BERNSTEIN, IRA H., *Professor of Psychology* (1964). B.A., University of Michigan, 1959; M.A., Vanderbilt University, 1961; Ph.D., 1963.
- BETHELL, LOE LIN, *Specialist in Nursing* (1982). B.S.N., Texas Christian University, 1976; M.S.N., Houston Baptist University, 1982. Registered Nurse.
- BIRMINGHAM, JUDITH A., *Specialist and Assistant to Dean in the Graduate School of Social Work* (1979). B.S., Lamar State University, 1965; M.S.S.W., University of Texas at Arlington, 1974.
- BLACK, TRUMAN D., *Professor of Physics* (1965). B.S., University of Houston, 1959; M.A., Rice University, 1962; Ph.D., 1964.
- BLACKWELL, CHARLES C., JR., *Professor of Mechanical Engineering* (1966). B.A., Rice University, 1955; B.S., 1956; M.S., Southern Methodist University, 1960; Ph.D., University of Arizona, 1966. Professional Engineer.
- BLUE, BARBARA, *Instructor in Nursing* (1981). B.S.N., California State University of Los Angeles, 1975; M.S.N., 1978; Ph.D., Texas Women's University, 1982. Registered Nurse.
- BOCK, E. C., *Associate Professor of History* (1966). A.B., St. Gregory's College, 1945; M.A., University of Oklahoma, 1964; Ph.D., 1966.
- BOLEN, JAMES C., *Associate Professor of Mathematics* (1960). B.A., Texas A&M University, 1954; M.S., 1956; Ph.D., Texas Christian University, 1968.
- BOLES, MICHAEL J., *Lecturer in Management* (1982). B.B.A., McMurry College, 1968; M.B.A., North Texas State University, 1971.
- BOLEY, ROBERT B., *Associate Professor of Biology* (1965). B.S., Sam Houston State University, 1949; M.S., Texas A&M University, 1960; Ph.D., Ohio State University, 1963.
- BOMBA, PAUL C., *Assistant Professor of Psychology* (1982). A.B., Franklin and Marshall College, 1978; M.S., Brown University, 1981; Ph.D., 1982.
- BONAR, EUNICE, *Assistant Instructor in Chemistry* (1965). B.A., Ohio Wesleyan University, 1947.
- BONDS, CHRISTINE, *Adjunct Associate Professor of Nursing* (1979). B.S.N., Louisiana State University, 1948; M.S.N., Marquette University, 1956. Registered Nurse.
- BOON, JOHN D., *Professor Emeritus of Geology* (1942). B.S., Southern Methodist University, 1936.
- BOONE, THOMAS D., *Assistant Professor of Physical Education* (1970). B.S., North Texas State University, 1964; M.Ed., 1968.
- BORLAND, BARRY L., *Adjunct Assistant Professor of Social Work* (1976). B.A., Morningside College, 1962; M.S.S.W., University of Missouri, 1964; M.S., 1966; Ph.D., 1970.
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- FRIAS, CHRISTINA, *Specialist in Nursing* (1980). B.S.N., University of Texas at Austin, 1962; M.S.N., Texas Woman's University, 1973. Registered Nurse.
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- FUROBOTN, EIRIK G., *James L. West Professor of Economics* (1982). A.B., Brown University, 1948; M.A., Columbia University, 1950; Ph.D., 1959.
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- HENRY, JAY C., *Associate Professor of Architecture (1972)*. B.Arch., Catholic University of America, 1962; M.Arch., University of Washington, 1969; Ph.D., University of California at Berkeley, 1974.
- HENRY, ROBERT L., *Adjunct Professor of Civil Engineering (1978)*. B.S., West Virginia University, 1958; M.S., Iowa State University, 1963; Ph.D., North Carolina State University, 1970. *Professional Engineer*.
- HERBST, ANTHONY FRANCIS, *Associate Professor of Finance and Real Estate (1981)*. B.S., Wayne State University, 1963; M.B.A., 1966; M.S., Purdue University, 1969; Ph.D., 1971.
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- HERNDON, ALLEN J., *Professor Emeritus of Education (1956)*. B.S., East Texas State University, 1946; M.S., 1948; Ed.D., North Texas State University, 1956.
- HERRMANN, ULRICH O., *Professor of Physics (1961)*. B.S., Justus Von Liebig University (Giessen, Germany), 1950; M.S., 1953; Ph.D., 1956.
- HESS, HARWOOD H., *Adjunct Associate Professor of Linguistics (1977)*. B.A., Wheaton College, 1947; B.D., Grand Rapids Baptist Seminary, 1950; Ph.D., University of Michigan, 1962.
- HICKEY, CARROLL E., *Assistant Professor of Communication (1971)*. B.A., University of Texas at El Paso, 1957; M.A., West Texas State University, 1960; Ph.D., Louisiana State, 1977.
- HILL, ARMENTHA, *Assistant Professor of Nursing (1976)*. B.S., Columbia University, 1959; M.S., Texas Woman's University, 1969; Ph.D., 1982. *Registered Nurse*.
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- HOIT, BILL F., *Assistant Professor of Mathematics (1955)*. B.S., Murray State University, 1947; M.A., 1948; Ph.D., Baylor University, 1955.
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- PERVIN, WILLIAM J., *Adjunct Professor of Mathematics (1974)*. B.S., University of Michigan, 1952; M.S., 1952; Ph.D., University of Pittsburgh, 1957.
- PESCHEL, MARGIE B., *Adjunct Associate Professor of Nursing (1976)*. B.S., Southwestern University, 1952; M.D., University of Texas Southwestern Medical School, 1959.
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- REDDICK, ROBERT J., *Associate Professor of English (1975)*. B.S., *University of Minnesota, 1966; M.A., 1969; Ph.D., 1975.*
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- ROBINSON, JAMES V., *Assistant Professor of Biology (1978)*. B.S., Polytechnic Institute of Brooklyn, 1967; M.S., 1971; Ph.D., Utah State University, 1978.
- RODNITZKY, JEROME L., *Professor of History (1966)*. B.A., University of Chicago, 1959; M.A.T., 1962; Ph.D., University of Illinois, 1967.
- ROEMER, KENNETH M., *Professor of English (1971)*. B.A., Harvard University, 1967; M.A., University of Pennsylvania, 1968; Ph.D., 1971.
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- ROSS, CHAPIN, *Associate Professor of Communication (1969)*. B.A., Abilene Christian College, 1954; M.A., 1957; Ph.D., University of Southern California, 1969.
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- RUDOWSKI, EDMUND, *Assistant Professor of Sociology (1964)*. B.A., Miami University 1948; M.A., Yale University, 1950.
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- RUSSELL, PAMELA S., *Lecturer in Accounting (1979)*. B.S., Texas Wesleyan College, 1975; M.B.A., North Texas State University, 1978.
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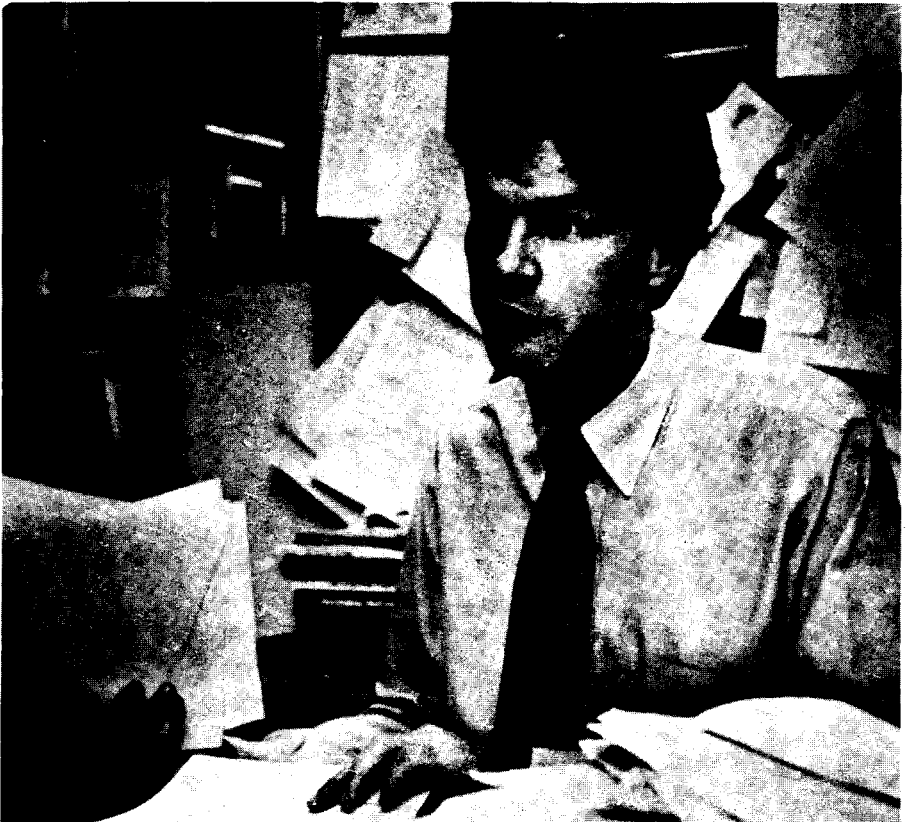
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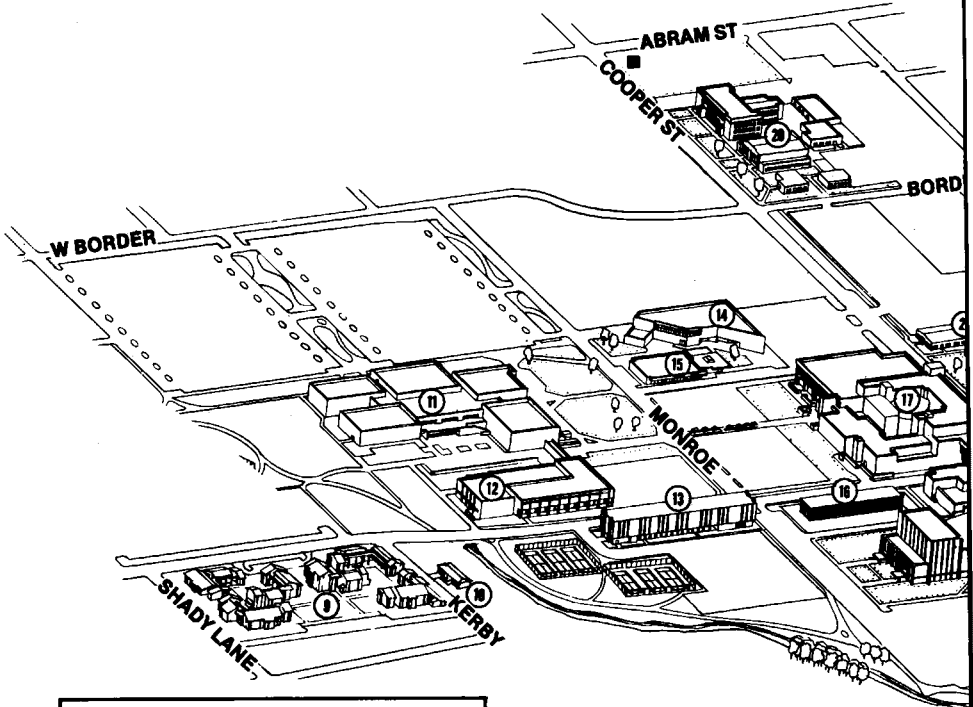
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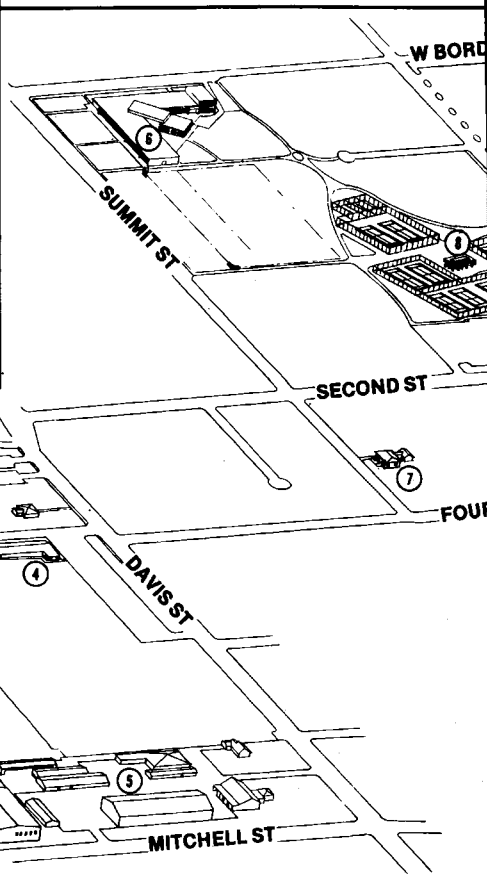
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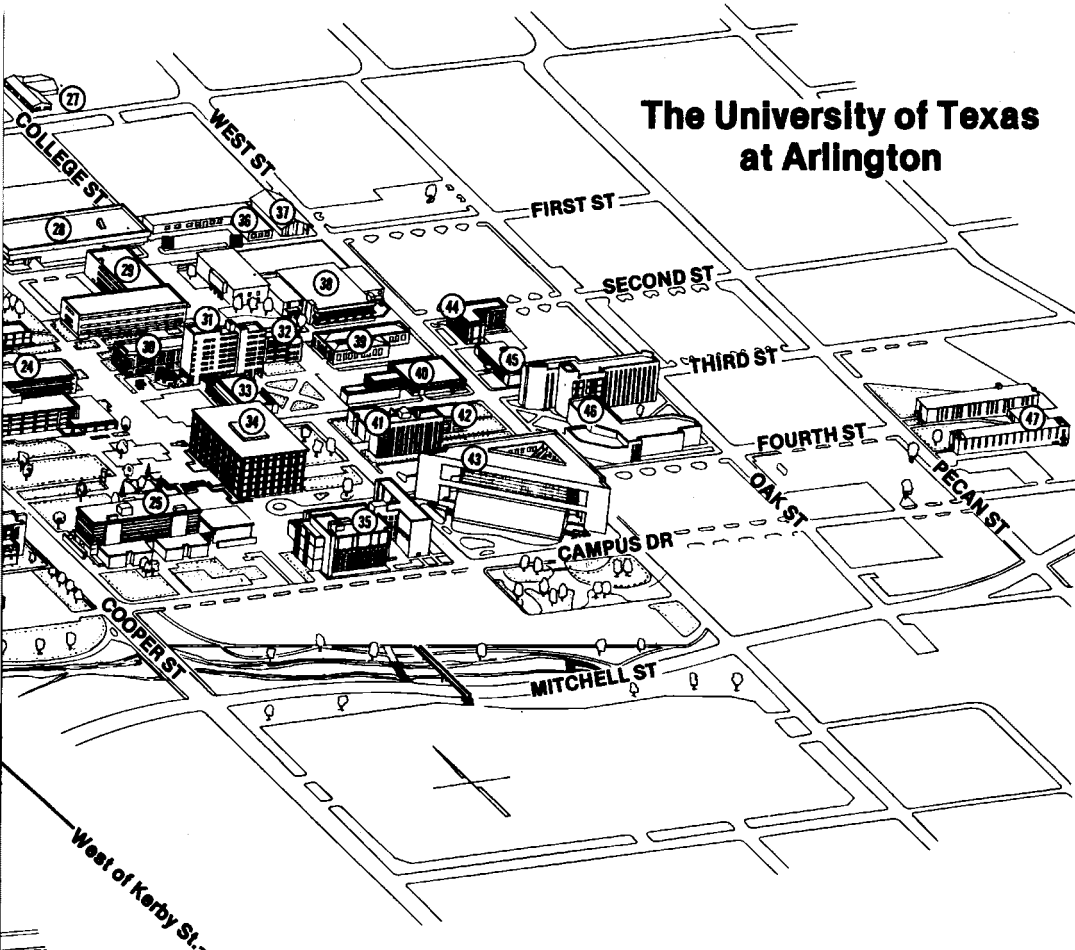


**Where To Find**

Activities Bldg. ....	11	Health Center .....	45
Admissions .....	19	Housing .....	10
Aerospace Engr. Lab .....	21	International Office .....	7
Athletic Office .....	4	Library .....	34
Baptist Student Center .....	37	Life Science .....	35
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Geoscience .....	23	Trinity House (Men) .....	13
Graduate Dean .....	19	University Center .....	38
Hammond Hall .....	41	University Police .....	19
		Visitor's Parking .....	■



# The University of Texas at Arlington



## Legend

- |                              |  |
|------------------------------|--|
| 1. Maverick Stadium          | 26. Evangelical Non-denominational Bible Chair |
| 2. Central Services Building | 27. Lutheran Student Center                    |
| 3. Maverick Village          | 28. Engineering Lab Bldg.                      |
| 4. Maverick Building         | 29. Engineering                                |
| 5. Maintenance Complex       | 30. Preston Hall                               |
| 6. Swift Center              | 31. Carlisle Hall                              |
| 7. International Office      | 32. Ransom Hall                                |
| 8. Tennis Complex            | 33. Maintenance Bldg.                          |
| 9. Student Housing Complex   | 34. Library                                    |
| 10. Housing Office           | 35. Life Science                               |
| 11. Activities Building      | 36. Church of Christ Bible Chair               |
| 12. PE Building              | 37. Baptist Student Center                     |
| 13. Trinity House (Men)      | 38. University Center                          |
| 14. Bookstore                | 39. College Hall                               |
| 15. Campus Center            | 40. Central Utility Plant                      |
| 16. Pacht Hall (Men)         | 41. Hammond Hall                               |
| 17. Fine Arts Building       | 42. Trimble Hall                               |
| 18. Texas Hall               | 43. Nursing Building                           |
| 19. Davis Hall               | 44. Brazos Hall (Co-ed)                        |
| 20. Cooper Center            | 45. Health Center                              |
| 21. Aerospace Engr. Lab      | 46. Business Building                          |
| 22. Engineering Machine Shop | 47. Lipscomb Hall (Women)                      |
| 23. Geoscience               | ■ Visitor's Parking                            |
| 24. Science                  |  |
| 25. University Hall          |  |

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# Notes



**ALMA MATER**

*Dear School we love,  
You are our Alma Mater,  
And through the years  
Our faith we shall proclaim.*

*We are each one,  
A loyal son or daughter,  
Our song of praise  
Shall glorify your name.*

*Dear School we love,  
Forever, Arlington.*

## MAJOR AND DEPARTMENTAL ABBREVIATIONS

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<b>ACCT</b>	Accounting	<b>HIST</b>	History
<b>AE</b>	Aerospace Engineering	<b>IE</b>	Industrial Engineering
<b>ANTH</b>	Anthropology	<b>INSU</b>	Insurance
<b>ARCH</b>	Architecture	<b>JOUR</b>	Journalism
<b>ART</b>	Art	<b>LARC</b>	Landscape Architecture
<b>BIOL</b>	Biology	<b>LATN</b>	Latin
<b>BLAW</b>	Business Law	<b>LING</b>	Linguistics
<b>BME</b>	Biomedical Engineering	<b>MANA</b>	Management
<b>BUSA</b>	Business Administration	<b>MARK</b>	Marketing
<b>CE</b>	Civil Engineering	<b>MASI</b>	Management Science
<b>CHEM</b>	Chemistry	<b>MATH</b>	Mathematics
<b>CIRP</b>	City and Regional Planning	<b>MATS</b>	Materials Science
<b>COML</b>	Comparative Literature	<b>ME</b>	Mechanical Engineering
<b>COMM</b>	Communication	<b>MILS</b>	Military Science
<b>CRJU</b>	Criminal Justice	<b>MSAS</b>	Military Science Aerospace
<b>CSE</b>	Computer Science and Engineering	<b>MUSI</b>	Music
<b>DG</b>	Design Graphics	<b>NURS</b>	Nursing
<b>DRAM</b>	Drama	<b>PHED</b>	Physical Education
<b>ECON</b>	Economics	<b>PHIL</b>	Philosophy
<b>EDUC</b>	Education	<b>PHYS</b>	Physics
<b>EE</b>	Electrical Engineering	<b>POLS</b>	Political Science
<b>EFL</b>	English as Foreign Language	<b>PORT</b>	Portuguese
<b>EM</b>	Engineering Mechanics	<b>PSYC</b>	Psychology
<b>ENGL</b>	English	<b>RATV</b>	Radio-Television
<b>FINA</b>	Finance	<b>REAE</b>	Real Estate
<b>FORL</b>	Foreign Languages	<b>RELI</b>	Religion
<b>FREN</b>	French	<b>RUSS</b>	Russian
<b>GE</b>	General Engineering	<b>SCIE</b>	Science
<b>GEOL</b>	Geology	<b>SOCI</b>	Sociology
<b>GERM</b>	German	<b>SOWK</b>	Social Work
<b>GREK</b>	Greek	<b>SPAN</b>	Spanish
<b>HEED</b>	Health Education	<b>SPCH</b>	Speech
		<b>SYAN</b>	Systems Analysis
		<b>URBA</b>	Urban Affairs

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