

2002–2003 Undergraduate and Graduate Catalog

The provisions of this Catalog are not an irrevocable contract between the student and the University of Houston–Downtown. The University of Houston–Downtown reserves the right to change any provision or requirement of this Catalog at any time, including but not limited to degree requirements, course offerings, fees and listings in the calendar as necessitated by university or legislative action.

All universities establish academic requirements for granting degrees. Advisors, program coordinators and deans are available to assist students in planning how to satisfy these requirements, but students themselves are responsible for fulfilling them.

Students should also be aware of the university's guidelines for conduct and disciplinary procedures. Information on students' rights and responsibilities including specific rules on academic honesty and prohibited conduct is available in the Student Handbook.

In accordance with the amendments to the Higher Education Act of 1965, known as the Student Right-to-Know and Campus Security Act, information regarding graduation rates may be found in the Office of Admissions and Records (Room 350-South, 713-221-8522), and information on crime statistics may be found in the University Police Office (Suite 118-North, 713-221-8065).

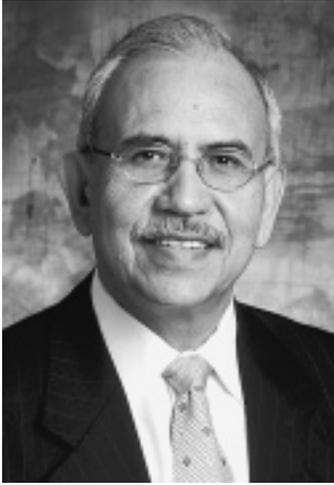
The university seeks to provide equal educational opportunity without regard to race, color, religion, national origin, gender, age, disability or veteran status in compliance with Title IX regulations and all other federal and state regulations.

The information contained in this Catalog is correct at the time of publication and is subject to change without notice.

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A Message from the President



As Houston's Downtown University, UH-Downtown is a public institution offering a wide variety of bachelor's and master's degrees that prepare students for professional careers or entry into graduate studies.

These are exciting times at UHD, with transitions in evidence on literally every side of our dynamic campus. At the Main Street entrance, METRO is constructing the northernmost station on its light rail line. In the next two years, UHD students will be able to board the train at UH-Downtown and ride a line that extends to Reliant Stadium.

UHD's North and South Decks will be spruced up in the next several months to renew a welcoming environment for studying, relaxing or taking a break with your friends between classes.

The most dramatic growth for UH-Downtown will be a new building to be constructed with \$18.3 million in tuition revenue bonds approved by the 75th Texas Legislature.

Of course, the reason for making these changes is that UHD is committed to offering you, the student, the best possible academic experience. UHD professors are dedicated to providing high quality instruction to help you prepare for your future. At UHD, the emphasis is on helping you succeed in reaching your educational goals.

UHD's warm, multicultural community and smaller class sizes translate into more personal attention when you need it. And UH-Downtown's convenient course schedules fit your lifestyle with day, night, weekend, and online options.

Excellence. Opportunity. Diversity. You'll find it all at UH-Downtown, Houston's Downtown University.

A handwritten signature in black ink, appearing to read "Max Castillo". The signature is stylized and written in cursive.

Max Castillo, EdD
President

Fall 2002

August 26 Regular classes begin
 August 31 Saturday classes begin
 September 2 Labor Day Holiday
 November 27-30 Thanksgiving Holidays
 December 4 Last class day for regular classes
 December 6 Last class day for Friday-only classes
 December 7 Last class day for Saturday-only classes
 December 9-14 Final Exams
 December 14 Commencement

Spring 2003

January 13 Regular classes begin
 January 20 Martin Luther King, Jr. Holiday
 March 3-8 Spring Break
 April 25 Last class day for Friday-only classes
 April 26 Last class day for Saturday-only classes
 April 28 Last class day for regular classes
 May 1-7 Final Exams
 May 10 Commencement

Summer 2003 Session I

May 27 Classes begin
 June 25 Last class day
 June 26 Final Exams

Summer 2003 Nine-Week Session

June 9 Classes begin
 July 4 Independence Day Holiday
 July 30 Last class day
 July 31 Final Exams

Summer 2003 Session II

July 7 Classes begin
 August 5 Last class day
 August 6 Final Exams

UH-Downtown: Houston's Downtown University

UH-Downtown is a public undergraduate university, beginning limited expansion into graduate programs. The university's dynamic campus is located in downtown Houston, easily accessed from all major freeways.

At UHD, the emphasis is on excellence in teaching and student success.

With dedicated faculty, small classes and innovative course options, UHD offers excellent educational opportunities through a wide variety of bachelor's degree programs in three colleges: Business, Humanities and Social Sciences, and Sciences and Technology.

In addition, UHD offers two master's degrees—the Master of Science in Criminal Justice and the Master of Arts in Teaching. As specific academic needs are identified, UHD will expand its service to the community by offering additional undergraduate and graduate degrees.

UHD is nationally recognized for its outstanding academic opportunities, including its accredited programs and productive community partnerships. One result of UHD's successful partnerships is the total number of scholarships generated through donations from corporations, foundations and individuals. Nearly \$2 million in scholarship aid was awarded to deserving students in the last academic year.

Flexible schedules and class options—including online, live interactive television and videotape—make degrees available to students throughout the metro area. UHD participates in partnerships with the UH System at Sugar Land, the UH System at Cinco Ranch, the University Center in The Woodlands, and San Jacinto College North. The Weekend College and evening classes put a degree within reach for students with full-time jobs.

UHD prepares individuals to thrive in the multicultural workplace of the 21st century through interaction with its student population, which is diverse in every sense of the word—in ethnicity, age, financial background and life situation. *U.S. News and World Report* names UHD one of the nation's most ethnically diverse institutions of higher learning.

UHD's "vertical campus" is multi-storied, offering all classes under one roof in two connected buildings—the historic One Main Building and the newer Academic Building. The campus is especially accessible to students with physical disabilities, with elevators connecting every floor.

Students can easily find comfortable areas to gather with friends and classmates, and they have ready access to sports and recreation facilities. The adjacent Jesse H. Jones Student Life Center includes gymnasiums, a dance studio and a fitness center.

History and Future on the Bayou

UHD is creating an exciting future based on a fascinating past. It all began in 1974, when the assets of the private South Texas Junior College were transferred to the University of Houston. By 1979, the Texas Legislature approved the new institution as a separate entity within the University of Houston System. In 1983, the name was changed to the University of Houston-Downtown.

UHD's One Main Building was constructed in 1929 on the banks of White Oak Bayou and Buffalo Bayou as the Merchants and Manufacturers Building, which is listed in the National Register of Historic Places.

Today, UH-Downtown is the second largest institution in the University of Houston System, which includes a total of four distinct universities: UH-Downtown, the University of Houston, UH-Clear Lake, and UH-Victoria. All four institutions are governed by the UH System Board of Regents. The chief administrative officer at each university is the president.

During the late 1990s, the university's facility grew with the addition of the Academic Building, comprising more than 40 classrooms and lecture halls, the Technology Teaching and Learning Center, the Wilhelmina Cullen Robertson Auditorium, a food court, and a building devoted to student health, recreation and fitness—the Jesse H. Jones Student Life Center.

The renovated third floor of the One Main Building offers a "one-stop" student service center, demonstrating UHD's commitment to more efficiently and effectively serve students. Students can get information about UHD, register for classes, seek financial aid and scholarships, meet with advisors, and pay fees in one area.

Students can also go online to handle some of the "business" of going to college, by accessing student e-services on UHD's web-site, www.uhd.edu. Through e-services, students can update personalized information, pay for classes, check their payment status, look at their own class schedules and grades, check admission and enrollment status and, if eligible, register online.

UHD is technologically up-to-date, with state-of-the-art computer labs located throughout the campus.

In the next few years, UHD will expand its space through construction of a new building to accommodate a growing student body. Enrollment in the fall semester of 2001 was nearly 10,000.

Additional renovations and improvements will create a more attractive and hospitable campus environment. In the near future, UHD students will benefit from the completion of the northernmost station in METRO's new light rail line, currently under construction at the Main Street entrance to the One Main Building.

Campus Safety and Security

Information on campus safety and security, including five-year crime statistics, is provided on the UH-Downtown Police Department website at www.uhd.edu/campus/pd/. Also available is safety and crime prevention information, campus policies on alcohol, firearms and sexual assault, crime alerts and more.

Accreditation

The University of Houston-Downtown's bachelor's and master's degree programs are accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia, 30033-4097; telephone: 404-679-4501; internet: www.sacscoc.org/).

The College of Business's Bachelor of Business Administration degree programs are accredited by the Association to Advance Collegiate Schools of Business (600 Emerson Road, Suite 300, St. Louis, Missouri, 63141-6762; telephone: 314-872-8481; internet: www.aacsb.edu/). Accreditation documentation is available in the office of the Dean of Business, Room 1009-North.

The Engineering Technology Department's Bachelor of Science in Engineering Technology degree programs in Control and Instrumentation Electronics Design, Process and Piping Design, and Structural Analysis and Design, are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc. (111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone 410-347-7700; internet: www.abet.org).

Undergraduate Admission Policies and Procedures

Applications can be submitted or requested through the Office of Enrollment Services at:

University of Houston-Downtown
Office of Enrollment Services
Room 350-South
Houston, Texas 77002-1001
713-221-8522

Application deadlines and enrollment procedures are printed in the *Class Schedule* each semester.

New and Transfer Student Admission

General Information

- **Application.** All new students must file an application for admission with Enrollment Services and pay the nonrefundable \$25 application fee by the application deadline. The application fee for international students is \$60. The application and fee is valid for a period of one year.
- **Residency Status Documents.** International students and U.S. citizens born outside the United States must provide original, valid immigration documents such as I-551, I-688, I-94, passport or U.S. citizenship certificate.
- **College Transcripts.** Students with prior college experience must submit official transcripts from all previously attended colleges regardless of whether college credit was earned. A transcript is considered official when it bears the institution's seal, is signed by the issuing authority, and is sent directly by the issuing institution or delivered in a sealed envelope.
- **Texas Academic Skills Program (TASP).** New and transfer students must take the TASP or a state-approved alternative test before they will be allowed to enroll for college-level courses. All students must satisfy all TASP obligations by the time they have earned 60 hours of college level credit, or they will not be permitted to take upper-level courses. See page 4 for more information about TASP.

- **Orientation.** New freshmen will be given information about orientation upon acceptance to the university. It is recommended that students attend orientation.

Freshman Admission

The university strongly recommends that all applicants seeking freshman admission complete a college-preparatory high school curriculum.

To qualify for freshman admission, an applicant must be a graduate of an accredited high school or hold a GED high school equivalency and must have earned fewer than 15 college-level semester credit hours. Graduates of Texas public high schools must also have passed the state-mandated high school exit examination(s). Freshman applicants must file an application for admission, pay the non-refundable application fee, and must have official copies of their high school, GED, and college transcripts mailed directly from the issuing institution to the University of Houston-Downtown by the application deadline.

Transfer Student Admission

Transfer applicants must file an application for admission, pay the nonrefundable application fee, and have official copies of transcripts from all prior colleges mailed directly from the issuing institution to the University of Houston-Downtown by the application deadline. Students applying for admission with less than 15 semester hours of college-level credit should submit an official high school or GED transcript as well as official college or university transcripts. Applicants must provide a record of their TASP status. See page 4 for more information on the TASP requirements.

Articulation Agreements

UH-Downtown has worked with area community colleges to develop degree articulation agreements. Students planning to transfer to UH-Downtown are encouraged to direct their questions about the transferability of their courses to their community college counselor or to Enrollment Services, 713-221-8522.

Transfer students are also referred to page 78 for information on the Texas Common Course Numbering System. This system ensures that any course designated as a Common Course by UH-Downtown will be accepted in transfer as equivalent to the UH-Downtown course.

Return of Former Students

Students who have attended UH-Downtown but who were not enrolled during the preceding long semester must update their records with Enrollment Services. Students who have attended other colleges or universities since last attending UHD must also arrange to have official transcripts sent to Enrollment Services.

International Student Admission

Individuals who hold nonimmigrant visas are classified as international students. International students seeking admission to the University of Houston-Downtown must apply through Enrollment Services. Individuals who have applied for immigrant status, but who have not adjusted their status with the Immigration and Naturalization Service, also must follow the procedures below in order to obtain an I-20 immigration form.

- **Application.** A new international student must file an application for admission with Enrollment Services and pay the nonrefundable \$60 application fee by the application deadline. The application and fee will be valid for a period of one year.
- **Transcripts.** Freshman students must provide official transcripts of secondary school scores, including mark sheets and date of graduation, in their original language. A certified English translation of all transcripts must be included if the originals are not in English.

Transfer students must provide official transcripts from all colleges or universities attended. If original transcripts are not in English, a certified translation must accompany the original documents. In addition, all foreign transcripts must be evaluated by an evaluation service recognized by UHD in order to receive transfer credit. Students transferring from another college or university in the United States must submit a transfer form that has been completed and signed by the foreign student advisor at the previously attended institution. This form must be returned to Enrollment Services at UH-Downtown prior to enrollment.

- **Affidavit of Support.** An Affidavit of Support must be submitted showing that a sponsor will be responsible for all educational and living expenses.
- **Bank Letter.** A certified bank letter, indicating that the sponsor is financially capable of meeting the student's education and living expenses, must be submitted. This letter must indicate, either in U.S. dollars or in the local currency, the amount maintained in the account(s). The letter must have been issued within the past six months.
- **Language Proficiency.** A valid TOEFL (Test of English as a Foreign Language) score of 550 for the paper version or 213 for the computer-based version is required. Students with a TOEFL score of less than 550 may attend the English Language Institute (ELI) prior to beginning academic studies at the university. ELI students study noncredit English classes until they are either recommended by ELI for academic study or achieve a 550 TOEFL score. Graduates of ELI are able to enroll directly into the academic program at UH-Downtown without taking the TOEFL.

Transfer students may be exempt from taking the TOEFL if they have passed 12 or more college-level hours in the United States, including Composition I and II, with a grade of C or better.

- **Health Insurance.** International students must carry health insurance for the duration of their studies. The University of Houston-Downtown requires that students have a minimum of U.S. \$50,000 health insurance coverage and U.S. \$7,500 repatriation coverage and U.S. \$10,000 medical

evacuation coverage. The deductible cannot exceed U.S. \$500. Each semester, in order to receive a UHD health insurance waiver, students must provide updated proof of this coverage, written in English, stating coverage from the beginning of the semester until the end of the semester. This proof must be in the form of a letter from the insurance company or embassy and it must be submitted to UHD Student Health Services no later than the official Day of Record which is published in the University Calendar at the front of every class schedule. Otherwise, students will be charged for health insurance as a part of their registration fees.

Early Admission

A high school student with a strong academic record who wishes to attend UH-Downtown during the summer prior to or during his or her senior year may apply for early admission. A student applying for early admission must follow the procedures for admission as outlined in the section titled New and Transfer Student Admission. In addition to these requirements, written approval from the high school principal or counselor must be provided. The courses to be taken at UH-Downtown must be approved by both the high school counselor and the university advisor.

College-Preparatory High School Curriculum

English Language Arts and Reading—4 credits

English I
English II
English III
English IV

Mathematics—3 credits

Algebra I
Algebra II
Geometry

Science—3 credits

Integrated Physics and Chemistry
Biology, AP Biology, or IB Biology
Chemistry, AP Chemistry, or IB Chemistry
Physics, Principles of Technology I, AP Physics, or IB Physics

Social Studies—3½ credits

World History Studies
World Geography Studies
U.S. History Studies Since Reconstruction
U.S. Government (½ credit)

Economics—½ credit

Economics

Physical Education—1½ credits

Foundations of Personal Fitness (½ credit)

Health Education—½ credit

Health Science Technology

Languages Other Than English—2 or 3* credits

Level I

Level II

Level III*

Fine Arts—1 credit

Select from Art I-IV, Dance I-IV, Music I-IV, or Theater I-IV

Speech—3 credits

Select from Communication Applications, Speech Communication, Public Speaking, Debate, or Oral Interpretation.

Technology Applications—1 credit

Additional Components—3 ½ credits or *2 ½ credits

Electives—1 credit

**One credit is equivalent to a one-year course*

A variety of other courses not listed here, including developmental and remedial courses, are not acceptable for the college preparatory program.

Required Testing-Undergraduate Programs

Texas Academic Skills Program (TASP)

TASP is a statewide testing and instructional program mandated by Texas law to ensure that students enrolled in Texas public colleges and universities have the basic academic skills needed to be successful in college-level work.

Who must take the TASP test?

All new and transfer students who do not qualify for an exemption must take the TASP test. Any student enrolling in the teacher certification program is required to take and pass the TASP test as a condition of certification, regardless of any other exemption.

Who is exempt from TASP?

The following students do not have to take the TASP test unless they are seeking teacher certification:

- Students with at least three hours of college-level credit earned prior to the fall of 1989
- Blind and/or deaf students who received at least three hours of college-level credit prior to the fall of 1995
- Summer transient students enrolled at an out-of-state or private institution during the previous spring semester (must provide appropriate documentation and sign a request for exemption form)
- Students who meet qualifying standards on the ACT, SAT, or TAAS tests:
 - ACT composite score of 23 or higher with English and math part scores equal to or greater than 19
 - SAT combined scores of 1070 or higher with verbal and math part scores equal to or greater than 500
 - TAAS scale scores of TLI X-86 or higher in math, TLI X-89 or higher in reading, and 1770 or higher in writing.

- ACT and SAT scores may be no more than five years old, and exit-level TAAS scores may be no more than three years old.
- Qualifying scores must be achieved at a single administration of the ACT or SAT, or the first attempt of the TAAS. Scores from separate test attempts cannot be combined to qualify for an exemption.

When must students take the TASP test?

All students entering a Texas public college or university must take the TASP test before they will be allowed to register for college-level courses.

I've never taken TASP. What should I do?

Entering students to UH-Downtown who have never taken the TASP test are encouraged to take the WritePlacer/AccuPlacer alternative to TASP. These tests, which are given at UH-Downtown, count as the first TASP attempt and are also used as placement tests for math and English. They are given on a regular basis. Students who do not pass WritePlacer/AccuPlacer must take the TASP on all subsequent attempts.

The Testing Center administers WritePlacer/AccuPlacer, TASP and Quick TASP. Contact the Testing Center, Room 370-South, 713-221-8027, for information about times, places, and cost.

May students enroll if they have not taken the TASP test?

Students who do not take the TASP test or an approved alternative test are not eligible to enroll in any courses other than developmental or other precollegiate courses until the tests have been taken and official score reports have been received. Students enrolling in violation of this regulation will be administratively withdrawn from all college-level courses.

What happens if a student does not pass the TASP test?

Students who do not pass all three sections (reading, mathematics and writing) of the TASP test must participate continuously in a program of developmental education in the subject area(s) not passed. TASP-obligated students must enroll in these classes every semester until they pass the TASP, and they must retake the TASP test every semester after completing the required developmental courses. Students may be allowed to take other courses while participating in developmental education with the approval of an academic advisor.

Students not passing all sections of the TASP test by the completion of 60 credit hours may not enroll in any junior or senior-level course until all sections of the TASP test have been passed. Students enrolling in violation of this regulation will be administratively withdrawn from all upper-level courses.

Are there other ways to satisfy the TASP obligation?

Students who pass required developmental course(s) but who fail the TASP test may, upon the approval of an advisor, proceed into college-level courses. They may satisfy their TASP obligation by making a B or better in approved courses. See an advisor for more information.

Where can students get additional information?

Additional information concerning TASP may be obtained from the *TASP Test Registration Bulletin* available in the Information Center, Room 330-South, and in Testing Services, Room 370-South; or by calling 713-221-TASP.

Placement Testing

All students must comply with the university's placement and course sequencing policy. Students admitted to the university, whether first-time-in-college or transfer, will be formally assessed in basic writing, reading, and mathematical competence, either through testing or evaluation of transfer credit, prior to enrollment in their first semester. All students must remain enrolled in English, reading, and mathematics courses until they have satisfied developmental and core curriculum freshman-level requirements in those areas.

Credit earned prior to enrollment at the university is evaluated in accordance with the Texas Higher Education Coordinating Board policies and procedures.

Developmental Education

As a result of placement testing, students may be required to enroll in developmental courses in reading, English, and/or mathematics. Upon successful completion of any required foundation courses, students are required to enroll, and to continue to enroll, for their core curriculum course sequences in English composition and mathematics until these requirements have been satisfied.

Students who do not make satisfactory progress toward completing required developmental courses may be placed on academic alert, probation or suspension, or may be subject to other academic sanctions.

Post-Baccalaureate Admission Policies and Procedures

Post-baccalaureate applicants must meet all undergraduate transfer admission requirements, but are required to submit only the transcript from the college or university granting the baccalaureate degree. Post-Baccalaureate applicants seeking a baccalaureate degree from UHD must meet all requirements for transfer admission.

Post-baccalaureate applicants desiring to take graduate courses, but not seeking a graduate degree, must comply with all requirements of the department managing the graduate degree to be eligible to be enrolled in the courses.

Graduate Admission Policies and Procedures

General Information:

- Applicants wishing to pursue graduate-level work at UHD must hold a bachelor's degree from an institution accredited by an accrediting agency recognized by the U.S. Department of Education and meet the minimum admissions criteria of the graduate program for which they wish to pursue a degree.
- Applicants must file an application for admission with Enrollment Services and pay the non-refundable \$25 application fee by the application deadline. The application fee for international students is \$60. The application and fee is valid for a period of one year.

- Applications can be requested and submitted through the Office of Enrollment Services at:
University of Houston-Downtown
Office of Enrollment Services
Room 350-South
Houston, Texas 77002-1001
713-221-8522

Application deadlines and enrollment procedures are printed in the *Class Schedule* each semester.

- Applicants must submit official copies of all previous college transcripts including previous graduate work. A transcript is considered official when it bears the institution's seal, is signed by the issuing authority, and is sent directly by the issuing institution or delivered in a sealed envelope.
- An applicant must submit GRE/GMAT or any other standardized test scores or other evidence of preparation and likelihood of success as required by the program the applicant wishes to enter.
- An applicant must be accepted into a specific graduate program at UHD to be admitted to the university as a graduate student.
- International applicants whose undergraduate work was completed at a foreign university are eligible for admission if UHD determines that their academic preparation is equivalent to or higher than that of graduates of an accredited U.S. institution.
- Individuals who hold nonimmigrant visas are classified as international students. Individuals who have applied for immigrant status, but who have not adjusted their status with the Immigration and Naturalization Service, also must follow procedures specified to obtain an I-20 immigration form.
- International students and U.S. citizens born outside the United States must provide original, valid immigration documents (I-551, I-688, I-94, passport or U.S. citizenship certificate).
- International graduate students are also subject to the general provisions regarding undergraduate international student admission including providing a transcript evaluation by a certified evaluation service of all transcripts from colleges and universities outside the United States, a statement of financial support indicating who will be responsible for the applicant's educational and living expenses, a current TOEFL score of at least 550 or other evidence of English language proficiency as required by the program the applicant desires to enter, evidence of required health insurance, and any other documentation required to comply with policies and procedures of the United States Immigration and Naturalization Service.

Tuition and Fees

The amounts shown in this section are provided to better assist students in assessing the cost of enrolling at the University of Houston-Downtown. While this information is intended to be comprehensive, tuition and fees are subject to change without notice by action of the Texas Legislature and/or the Board of

Regents of the University of Houston System. Students are responsible for any additional amounts due UHD resulting from audits and corrections, including all fees and waivers; i.e., registration assessing errors, changing from on-campus to off-campus courses or courses delivered via tape, television or computer modem on-line, etc. For current information on tuition and fees, see the *Class Schedule* for the semester in which enrollment is planned or inquire at the Cashier's Office.

Distance Learning Fees

Students enrolled in courses at off-campus sites or in courses delivered via tape, television or computer modem on-line are subject to a distance learning fee.

Residency Status

Residency status is determined in accordance with *Rules and Regulations for Determining Residency Status*, published by the Texas Higher Education Coordinating Board, and pursuant to Title 3, Texas Education Code. Information concerning residency requirements is available in Enrollment Services.

In order to request a change in residency status for a given semester, a residency appeal form and all supporting documentation must be submitted to Enrollment Services by the official Day of Record found in the University Calendar of the *Class Schedule* for the semester to be considered.

Tuition for Excessive Undergraduate Hours

Newly enrolled undergraduate students may be charged a tuition rate not to exceed that charged nonresidents, if they are a resident of Texas and the number of hours required for completion of their undergraduate degree is in excess by at least 45 hours. Details on this law are available from Enrollment Services.

Auditing

Students auditing courses pay the regular tuition and all other applicable fees. Senior citizens 65 years or over may audit free on a space-available basis. A Request for Audit form must be processed in Enrollment Services by the Official Day of Record for the appropriate term. For further details regarding auditing, contact Enrollment Services.

Texas Rebate Program

As authorized by Texas Education Code (Section 54.0065), any student who enrolled for the first time since fall 1997 for their first baccalaureate degree from a Texas public university may be eligible for a rebate of a portion of their undergraduate tuition up to \$1,000. To be eligible, a student must complete his/her degree with no more than three hours attempted in excess of the minimum number of semester credit hours required to complete the degree, including transfer credits.

Fees

All new students at the university are subject to a \$10 general property deposit fee. State law allows the university to collect this deposit to insure against loss, damage, and breakage in libraries and laboratories.

The deposit is refundable, UPON REQUEST, only upon permanent withdrawal or graduation. Charges for any loss, damage

or breakage caused by the student are deducted from the deposit. Refund request forms are available in the Cashier's Office. Any general property deposit which is not requested for refund for a period of four years from the date of last attendance shall be forfeited and become a part of the student deposit fund to be used exclusively for scholarships.

In addition to tuition, all students at the University of Houston-Downtown are subject to student services, general use, University Center, student record, international education and computer access fees (see chart below). Some courses and services also require additional fees:

Application for admission (nonrefundable)	\$25
Application for international admission (nonrefundable) ...	\$60
Laboratory (per laboratory class)	Varies from \$10 to \$30
Distance learning (per course)	\$140
Advanced standing exam	\$15
Graduation application	\$50
Late registration (nonrefundable)	\$20
Returned check	\$20
Orientation fee	\$25
Field trip	Students will be charged the amount necessary to defray the cost of the trip
International student service fee	\$45
Student parking registration—long semester	\$35
Student parking registration—summer session	\$12

Fall 2002 Undergraduate Tuition and Fees

Sem. Credit Hours	Tuition		Fees				
	Resident	Non-Resident	Student Center	Student Service	Incidental	Student Record	Int'l. Education
14-22	\$74/hr.	\$292/hr.	\$25	\$117	\$80	\$9	\$1
10-13	\$74/hr.	\$292/hr.	\$25	\$9/hr.	\$80	\$9	\$1
6-9	\$74/hr.	\$292/hr.	\$25	\$9/hr.	\$8/hr.	\$9	\$1
4-5	\$74/hr.	\$292/hr.	\$15	\$9/hr.	\$8/hr.	\$9	\$1
3	\$222	\$292/hr.	\$15	\$9/hr.	\$8/hr.	\$9	\$1

Fall 2002 Graduate Tuition and Fees

Sem. Credit Hours	Tuition		Fees				
	Resident	Non-Resident	Student Center	Student Service	Incidental	Student Record	Int'l. Education
14-22	\$89/hr.	\$292/hr.	\$25	\$117	\$80	\$9	\$1
10-13	\$89/hr.	\$292/hr.	\$25	\$9/hr.	\$80	\$9	\$1
6-9	\$89/hr.	\$292/hr.	\$25	\$9/hr.	\$8/hr.	\$9	\$1
4-5	\$89/hr.	\$292/hr.	\$15	\$9/hr.	\$8/hr.	\$9	\$1
3	\$267	\$292/hr.	\$15	\$9/hr.	\$8/hr.	\$9	\$1

The university reserves the right to change tuition, other charges, and related requirements and regulations as necessitated by Board of Regents or legislative action.

International students pay out-of-state tuition and fees plus a \$45 international student service fee during long semesters. The international student service fee is \$20 each summer session. Student Health Insurance is also required for each semester.

Method of Payment

Students shall be provided with two alternative methods of payment of tuition and mandatory fees for each fall and spring semester for which they are enrolled:

- Full payment of all tuition and mandatory fees prior to the beginning of the semester; or
- One-half payment of all tuition and fees prior to the beginning of the semester, one-quarter payment prior to the start of the sixth class week, and the final one-quarter payment prior to the start of the eleventh class week.

Only one alternative may be selected by a student for any semester.

Each student electing to pay by installment will be charged a \$24 processing fee. An additional fee of \$10 per installment shall be collected from any student who is delinquent in making an installment payment.

Health Insurance and Installment (\$24) fees shall be paid prior to the beginning of the semester.

Students receiving financial aid equal to, or in excess of, the total amount of tuition and fees may not participate in the installment plan. The full payment of tuition and fees for the semester in which they are enrolling must be made upon issuance of that semester's financial aid funds.

Withdrawal from the university, for whatever reason, will not cancel the obligation to pay the full amount of the installment payment. Furthermore, no refund of tuition and fees will be made to a student who has failed to make full payment of tuition and fees.

Any student who has elected to pay tuition and fees by installment, and who is delinquent in making payment, is barred from attending any institution in the University of Houston System until full payment, including delinquent charges, has been made. Each university maintains records and informs other institutions about the status of payments should the student attempt to register for courses or pursue a degree at any other component of the University of Houston System.

An additional default fee of \$50 is collected from any student who fails to make all installment payments by the end of the semester. This fee, in addition to all other amounts due, must be paid prior to the student's registering for courses during a subsequent semester.

Students who choose to pay the full cost of tuition and fees prior to the beginning of the semester may pay by cash, personal check, or credit card (VISA, Discover, or MasterCard only).

In addition, UH-Downtown students may make installment payments using a credit card.

Payments may be made in person at the Cashier's Office (Room 310-South), by mail, by fax (713-226-5267), by telephone (713-221-2222), or online using Student E-services at www.uhd.edu.

Financial Responsibility

Students are required to meet financial responsibilities to the university.

Students who write checks to the university on accounts with insufficient funds are assessed a \$20 service charge for each such check, regardless of the amount. If a check is returned as a result of bank error, the student must deal with the bank for reimbursement of the \$20 returned check charge paid to the university. If such a check is presented in payment of tuition and fees, the return of the check could also result in possible charges of late fees.

In addition to these penalties, a student who does not meet financial responsibilities to the university may be subject to withdrawal from classes and may be referred to law enforcement authorities and/or the local credit bureau.

An official transcript shall not be given to or on behalf of a student who is in default on any payment due the university. The student will not be allowed to re-enroll at the university until all past due payments have been made, and a reinstatement charge may be required before enrollment is approved.

Refunds

All refunds are made in accordance with the following rules and regulations:

Concurrent Enrollment

Under the provisions of Section 54.062 of the Texas Education Code, the university will refund to students excess tuition paid as a result of being concurrently enrolled at more than one Texas public institution of higher education. To qualify the student must:

- Register at UH-Downtown after registering at the first institution;
- Provide the university proof of being concurrently enrolled and paid at both institutions; and
- Provide the university proof of the amount of tuition paid at the first institution.

All concurrent enrollment refund requests must be made in writing at the Business Affairs Office. The refund check will be mailed to the address on file in Enrollment Services.

Complete Withdrawal

Students who officially withdraw from all university courses may be eligible for a refund of tuition and mandatory fees. No refund will be made to a student until full payment has been made on any outstanding balance. All 100 percent refunds incur a \$15 processing fee.

Partial Withdrawal

Students who officially drop courses within the first 12 class days of the fall or spring semester, or within the first four days of a summer session, are eligible for a partial refund of tuition and certain fees at the end of the semester.

No refund will be made to a student who has not met all financial obligations, including full payment of installment balances. Refunds will be mailed to the address on the student's record file.

No refund will be issued if a student received financial aid; the refund will be credited to the appropriate financial aid account. The *Class Schedule* provides specific dates and deadlines.

Scholarships and Financial Aid

The University of Houston-Downtown offers a variety of financial aid programs to assist undergraduate and graduate students in meeting educational costs. The programs include scholarships, grants, loans and part-time employment, which may be awarded in various combinations and amounts to meet individual student needs.

Because funds are limited in many programs, it is important to begin the application process early and complete the necessary applications properly and on time. To receive priority consideration for Supplemental Equal Opportunity Grant and all state grant funds, all necessary applications must be on file in the Office of Scholarships and Financial Aid by April 1 of each year.

Most federal and state aid is awarded on the basis of proven financial need rather than academic achievement. Most scholarships are awarded on the basis of academic achievement, talents and special skills rather than proven financial need.

Financial Aid Programs

UH-Downtown participates in the following federal, state and institutional programs. Most programs have limited funds, so early application is encouraged.

Grants

Federal Pell Grant. Any student who is a U.S. citizen or permanent resident who has proven financial need. Amount of award varies depending on EFC (estimated family contribution) number and enrollment status.

Federal Supplemental Equal Opportunity Grant (SEOG). Any student who is a U.S. citizen or permanent resident who has proven financial need. Priority will be given to those students who will also be receiving a Pell Grant.

Leveraging Educational Assistance Partnership (LEAP). This grant, funded by both state and federal funds, is available to students enrolled at least half time who demonstrate financial need. Must be a U.S. citizen or permanent resident and classified as a Texas resident.

TEXAS Grant. This renewable state grant is available to recent Texas high school graduates who completed the "recommended" or "advanced" curriculum in high school or who received an associate's degree after May 1, 2001 who also demonstrate financial need. Students must enroll in a minimum of 9 hours and be classified as Texas residents.

Texas Public Educational Grant (TPEG). This grant is funded by tuition revenues and is available to both Texas residents and non-residents. Students must demonstrate financial need to be eligible for this grant. Priority will be given to students who enroll at least half time.

License Plate Scholarship. This grant is funded by revenues from UHD "vanity plate" fees. Students must enroll at least half time, be classified as Texas residents and demonstrate financial need.

Student Deposit Scholarship. This institutional grant is awarded to students who enroll at least half time and demonstrate financial need.

Work-Study Programs

Texas Work-Study and Federal College Work Study. These programs are designed for students who enroll at least half time who demonstrate financial need. Awards are earned as wages in on- and off-campus positions. Must be a U.S. citizen or permanent resident for federal work-study or be classified as a Texas resident for Texas work-study. Students who have relatives working at UH-Downtown must get clearance from the Office of Scholarships and Financial Aid to show they are in compliance with the university's nepotism policy.

Student Loans

Federal Subsidized Stafford Loan. A low-interest loan with interest subsidies while students are enrolled at least half-time. Must be a U.S. citizen or permanent resident and be enrolled at least half-time to participate. Maximum loan amounts vary with grade level in college. Additional application and loan counseling required.

Federal Unsubsidized Stafford Loan. A low-interest loan not based on financial need. Students may defer interest payments while enrolled at least half-time. Must be a U.S. citizen or permanent resident and be enrolled at least half-time to participate. Maximum loan amounts vary with grade level in college. Additional application and loan counseling required.

Parent Loans to Undergraduate Students (PLUS). A low-interest loan for parents of dependent students enrolled at least half-time. Parent must be a U.S. citizen or permanent resident and student must be enrolled at least half-time to participate. Families do not need to demonstrate need to participate in this program. Additional application required.

Application Procedures

At a minimum, students should complete the Free Application for Federal Student Aid (FAFSA) and the UHD Financial Aid Application. Other forms or documentation may be required to determine eligibility for state and/or federal programs. When completing the FAFSA, students should list UH-Downtown's school code in Step Six. Our Title IV school code is 003612. Students may request a financial aid application packet by calling 713-221-8041.

Once a student has begun the application process, the Office of Scholarships and Financial Aid (OSFA) will notify the student of missing forms and/or documentation by mail. Students will also be mailed an Award Letter when their eligibility for aid has been finalized.

Estimated Costs

The following are estimated costs for attending UHD full time for the 2002-2003 academic year:

	RESIDENT	NON-RESIDENT
Direct Costs		
Tuition & Fees (12 hours)	\$1,111	\$3,727
Books and Supplies	\$1,000	\$1,000
Indirect Costs		
Living Expenses		
With Parents	\$2,365	\$2,365
Not with Parents	\$5,942	\$5,942
Transportation	\$2,014	\$2,014
Miscellaneous	\$ 976	\$ 976

Other Eligibility Requirements

To be eligible for financial aid, students must be admitted as a degree-seeking student at UH-Downtown. Transient students (students taking classes to transfer toward a degree pursued at another institution) are not eligible for financial aid at UHD.

Satisfactory Academic Progress Requirements.

In order to receive financial aid, you must make progress toward your degree as defined by the OSFA. There are three components to academic progress:

Grade Point Requirement. You must achieve and maintain at least a 2.0 cumulative grade point average on all course work attempted. Graduate students must achieve and maintain a cumulative GPA of 3.0.

Completion Requirement. You must complete at least 73 percent of all course work attempted.

Time Frame Requirement. You may attempt up to 170 hours without earning a degree. If you have earned your first bachelor's degree, you are allowed 150 percent of the hours remaining to complete your program.

A complete copy of the Satisfactory Academic Progress Policy is available upon request. Please read the complete Satisfactory Academic Progress Policy to see how your progress will be monitored.

The OSFA is required to review your entire academic record (regardless of the age of the record or whether or not aid was received) to determine if you are in compliance. If you are not in compliance, you will be notified in writing of your denial/suspension and the appropriate appeal procedure.

Dropping Classes

Your final eligibility for aid will be based on the number of hours for which you are enrolled on the Official Day of Record listed in the *Class Schedule*. If you register and then drop class(es) prior to that date, your eligibility for aid will be RECALCULATED on your remaining hours as of the Official Day of Record. Since financial aid is released prior to the Official Day of Record, students who receive a financial aid payment based on more hours than those remaining as of the Official Day of Record may be responsible for repaying a portion of any financial aid received. Dropping classes may affect your eligibility for future aid. You should consult the Satisfactory Academic

Progress Policy to determine if dropping classes will affect your eligibility for aid.

Total Withdrawal from School

If you register and then totally withdraw from all classes, your eligibility for aid will be RECALCULATED based on the number of days you attended class. If you totally withdraw from all classes prior to the first class day, you must repay any and all financial aid received. If you withdraw on or after the first class day, you may have to repay a portion of any cash financial aid received. See Return of Title IV Funds below. If you totally withdraw, you should consult the definition of Satisfactory Academic Progress to determine if your withdrawal will affect your eligibility for future aid.

Return of Title IV Funds

The Higher Education Amendments of 1998 changed the formula for calculating the amount of aid a student and school can retain when the student totally withdraws from all classes. Students who withdraw from all classes prior to completing 60 percent of the semester will have their eligibility for aid recalculated based on the percent of the semester completed. For example, a student who withdraws completing only 30 percent of the term will have "earned" only 30 percent of any Title IV aid received. The remaining 70 percent must be returned by the school and/or the student. The OSFA encourages you to obtain a complete copy of this policy from the OSFA and read it carefully. If you are thinking about withdrawing from all classes PRIOR to completing 60 percent of the semester, you should contact the OSFA to see how your withdrawal will affect your financial aid.

Academic Scholarships

Academic scholarships at UH-Downtown are intended to recognize and reward outstanding achievement and community involvement. Applicants for most scholarships, therefore, do not need to show evidence of financial need to apply.

The application deadline for most UH-Downtown scholarships is April 1 of each academic year. However, the Office of Scholarships and Financial Aid may accept applications at other times during the year if scholarship funds are available. Interested students should contact the Office of Scholarships and Financial Aid as soon as they decide to apply for admission at UHD to find out what scholarships are available.

Many academic departments at UHD also award scholarships. Students are encouraged to contact the department of their major to find out what departmental scholarships are available.

Tuition and Fee Exemptions

Hazlewood Act for Veterans

State law provides that a veteran who is a legal Texas resident is exempted from tuition and certain required fees, but not from deposits, if the following criteria are met.

The veteran:

- Has resided in Texas for a period of not less than 12 months prior to the date of registration;
- Served in the armed forces or in certain auxiliary services for more than 180 days;

- Was a bona fide legal Texas resident at the time of entering such service;
- Was honorably discharged (except those who were discharged because of being over the age of 38 or because of personal request);
- Has exhausted all veteran's educational benefits; and
- Is not eligible for federal grants, including federally sponsored grants provided for veterans by the U.S. government.
- Not be in default on any federal or state student loans.

To obtain this exemption, the veteran must submit an application with attached evidence to the Office of Scholarships and Financial Aid by the official day of record of the term for which the veteran is applying for the Hazlewood benefits. Hazlewood applications must be renewed each year.

Benefits for Children of Texas Veterans and Children of Disabled Firemen or Peace Officers

Exemption from payment of certain fees also extends to children of members of the armed forces who were killed in action or died while in the service and to the children of disabled firemen and peace officers where injury or death was sustained in the line of duty. Contact the Office of the Scholarships and Financial Aid for proper procedures.

Academic Resources

Library

The W.I. Dykes Library is located on the entire fifth floor of the One Main Street building with the only entrance being from the Main Street elevators or stairwell. The library has holdings of more than 200,000 books, 37,000 bound periodical volumes, 140,000 microforms, and 1,900 current periodicals and serial subscriptions. The library also has a collection of compact discs and videos that are available for checkout or for listening and/or viewing in the library. Video, compact disc, and audio cassette players are available for use in the library, if needed. The library has more than 50 computers available to access the library's online catalog, using the electronic databases for finding articles or citations, and for searching the Internet. The library's web site is www.uhd.edu/library.

The UHD Online Catalog lists the books and journals available in the W.I. Dykes Library and at most other University of Houston campus libraries. Access to the online catalog from a home computer or from the UHD computer lab supports research 24 hours per day. The catalog is available from the library's web site listed above. The library's electronic resources include databases that may be searched to identify articles on a topic. Search results can be printed, downloaded to a floppy disk, and/or emailed. The library network also provides access to the online catalogs of other libraries in the Houston area and to a wealth of Internet resources.

The reference collection in the library contains encyclopedias, dictionaries, almanacs, directories, and many other sources. The full-text of journal, magazine, and newspaper articles in electronic form can be found by using the library's full-text databases: ABI/Inform, Criminal Justice Index, Electric Library,

Houston Chronicle, JSTOR, Periodical Abstracts, and Project Muse under the "Find Articles" section of the library's web site. Many additional electronic resources for finding citations or information about a topic can be accessed through links from the library's "Find Articles" section of the web site as well.

The library also houses the Texas Education Collection, including Texas state-adopted textbooks for K-12 and curriculum guides for HISD. This collection is supplemented by holdings in juvenile books.

Reference librarians can offer individual assistance at the Reference Desk in utilizing the online catalog, print materials, or any of the electronic library resources. Tours and classes may be scheduled for group instruction. Library guides are also available in the Reference area with additional information or assistance.

Coin and card-operated machines are maintained for photocopying of materials. IBM Selectric typewriters are furnished free for student use in the library. A Kurzweil optical reader and three closed-circuit TVs that enlarge print are available for the visually impaired. Anyone with special physical or communication needs can ask for assistance from any library service desk or phone the library to schedule an appointment for special services. Study rooms are also available for groups of three or more students.

If the W.I. Dykes Library does not own the book or journal article needed by a student, faculty, or staff member, then Interlibrary Loan can be used. The library will borrow the material for you from another library anywhere in the country. Interlibrary Loan is primarily a free service. If there will be a charge, your permission will be requested before UHD requests this material for you.

The library has additional services for UHD distance students. Just click on the Distance Education Students link on the library's web site www.uhd.edu/library and you will have access to forms for requesting books, articles, reference assistance, as well as access to free Internet resources for finding articles.

A currently validated UHD identification card is used as the library card and must be presented when checking out materials. The card is obtained during registration and must be updated with a current sticker each semester. The library is open seven days a week during full semesters and Monday through Saturday during the Summer semester. Check with the library for intersession and holiday hours. For reference information call 713-221-8187; for circulation information call 713-221-8186.

Computing Services

The University of Houston-Downtown offers state-of-the-art computing equipment and software to its students, faculty, and staff. The primary academic computers are Compaq Proliant for PC support, Compaq Alpha for UNIX support and an IBM SP2 (scalable parallel processing) for parallel and research computing. The 16,000-square-foot Academic Computing Lab houses more than 250 PCs and printers. In addition, this facility, which is available to any currently enrolled student, has three electronic classrooms, seminar room, and special devices to aid disabled students. Academic Computing teaches short courses, develops documentation and provides group and individual consulting to its constituents.

Special purpose labs are available to students. The Engineering Technology Department maintains several computer labs for engineering applications. The Department of Computer and Mathematical Sciences has four computer classrooms of PCs for instruction in computer science, mathematics, and statistics. The Natural Sciences Department has a 60-station Science Learning Center that contains two state-of-the-art electronic classrooms. The department also has a new Science and Technology Demonstration Laboratory. The College of Business has a classroom for teaching word processing, keyboarding and computer information systems. The Academic Support Center offers learning support software for individual work in developing reading, writing and mathematics skills. There are over 15 specialized departmental computing labs serving subject specific needs.

The Technology Teaching and Learning Center (TTLC)

The Technology Teaching and Learning Center assists faculty to develop and implement interactive teaching and learning technologies that increase the effectiveness of their pedagogy. Offering a wide range of programs, tools and activities, the TTLC houses four electronic classrooms, a training/teleconference room, and an instructional television studio, control booth and editing suite, a faculty development area, a multimedia production lab, an emerging technologies showcase and an instructional technology library.

Academic Support Center

The Academic Support Center offers tutoring, computer equipment and software to assist students in reading, mathematics, writing and TASP. The center is located in Room 925-North and is open to all UH-Downtown students. Hours are structured to fit day and evening students' schedules, and students may attend as often as they like.

Multimedia Services

Multimedia Services provides instructional support and media production services for students, faculty, and staff. Multimedia Services houses and distributes audiovisual equipment for classroom use and student activities. The staff assists in developing and producing audio, video, photographic and graphic presentations. The multimedia center contains a television studio, video and audio copying services, transparency making and lamination equipment, and an area for viewing videotapes. Multimedia Services is located in Room 930-South.

Academic Policies

Courses and Course Credit

Course Load

A regular undergraduate course load during the fall and spring terms is 15 to 16 semester credit hours or five courses. Twelve semester credit hours is considered the minimum full-time load. For students who are employed 40 hours per week, the recommended load is two courses, or six credit hours. The regular

load for one summer session or a minimester is six to eight credit hours. Students who wish to enroll in 20 credit hours or more in a long semester or nine hours or more in a summer session must receive approval from the appropriate academic dean. For information on graduate course load consult specific master's degree handbooks.

Schedule Changes

Schedule changes are made online, through telephone registration and in person and may require approval by an academic advisor. Instructions are found in each semester's *Class Schedule*.

Discontinued Classes

The university reserves the right to discontinue classes or otherwise alter the class schedule. Whenever possible, enrollment in an alternate course is completed through an administrative change form initiated by the department responsible for discontinuing the class.

Classification

Undergraduate classification is determined by the number of credit hours which have been completed: 0-29 semester hours: freshman; 30-59 semester hours: sophomore; 60-89 semester hours: junior; and 90 semester hours and above: senior.

Master's classification is determined by admission status.

Class Attendance

Students are expected to attend all class sessions. The responsibility for withdrawing from a course lies with the student. Departments and faculty members may have other attendance policies for their courses.

Transfer Credit-Undergraduate

Acceptance of Transfer Credit

Transfer students must submit official transcripts from all colleges or universities attended as a part of the admission process (See New and Transfer Student Admission, page 2). An evaluation will be performed upon acceptance into the university. Course work transferred or accepted for credit toward an undergraduate degree must represent collegiate course work relevant to the degree, with course content and level of instruction resulting in student competencies at least equivalent to those of students enrolled in the institution's own undergraduate degree program.

No more than 66 semester hours of transfer credit from a junior or community college may be applied toward a degree. Declared majors should obtain approval from their degree-granting college before taking additional courses to transfer to UHD.

UH-Downtown may not accept transfer credit for courses in which grades of D have been earned except for courses which are part of the approved transferable core curriculum.

Courses transfer on the same level and with the corresponding number of hours as earned at another institution. Courses taken at a junior or community college do not transfer as upper-level credits.

Courses taken at other colleges that do not correspond to courses offered by UH-Downtown may transfer as elective credit, with the approval of the appropriate academic dean.

With consent of the appropriate dean, the chair of the department in which the student is majoring will make the decision concerning application of transfer credit to the degree program.

In general, UH-Downtown does not award transfer credit for vocational courses that are not considered part of a standard college curriculum. Students may petition the academic dean of the college in which they are seeking their degree, who may agree to award credit for such courses in exceptional circumstances.

Students should direct questions concerning transfer credit to their academic advisor or degree program coordinator.

Evaluation of Transfer Credit

Transcripts will be evaluated for institutional transfer credit upon completion of the admission application process. Students accepted later in the admission cycle may not receive the evaluation until after they have actually enrolled. Transfer work will be further evaluated for applicability to the student's chosen degree plan by the degree-granting college.

Students who apply to UHD while they are attending another institution must submit two official transcripts. The first should be sent at the time of application and should reflect the student's current enrollment. A second must be sent as soon as grades are available for those classes.

Transferring Credits From Overseas

Students applying for admission with overseas college credits must submit an evaluated transcript from a credential evaluation service recognized by the university. Credits will be granted based on the recommendations of the evaluating service with respect to University of Houston-Downtown degree requirements at the time of enrollment.

Information and brochures from evaluating services are available at Enrollment Services.

Transfer Credit Dispute Resolution Procedures

Students who receive written notification from Enrollment Services that a lower-level course taken at another Texas public institution of higher education has not been accepted may challenge denial of credit by UH-Downtown. To initiate a dispute action, a Transfer Dispute Resolution form must be completed. The form and instructions for its completion are available in the Office of the Vice President for Academic Affairs, Room 950-South.

Transfer Credit—Graduate

Transfer of graduate course credit is discussed in the published master's degree handbooks.

Credit by Examination—Undergraduate

UH-Downtown currently accepts up to 24 hours of credit obtained from approved credit by examination courses. Credit by examination may be obtained on the basis of several types of examinations. Nationally recognized standardized examinations such as the College Level Examination Program, American College Testing and Advanced Placement may be used. Examinations widely used within a professional field and locally designed examinations also may be used.

Students may not attempt to receive credit by exam for any course in which they are or have been enrolled at an accredited institution; however, students may attempt credit by examination for courses in which they are or have been enrolled at a non-accredited institution.

Nationally used standardized examinations are administered through Testing Services; all other examinations are administered through the responsible department.

If credit is not awarded, a period of six months must elapse before application for re-examination will be considered. Appropriate fees are charged for each examination. No student may attempt the exam for a particular course more than twice.

Credit may be granted for professional certification and training received from armed forces and service schools. With consent of the appropriate dean, the chair of the department in which the student is majoring will make the decision concerning the applicability of such courses to the degree program.

Credit received by examination does not fulfill residency requirements for graduation.

No grade is awarded for courses for which credit has been obtained by exam, nor are hours received for such courses included in the calculation of grade point average for graduation.

Listed below are the subject examinations for the Advanced Placement Program and the College Level Examination Program.

Advanced Placement Program

EXAMINATION	A GRADE OF	EARNs CREDIT FOR UH-D COURSE(S)	SEMESTER HOURS
Biology	3 or 4	BIOL 1301/1101	4
	5	BIOL 1301/1101 & 1302/1102	8
Chemistry	3 or 4	CHEM 1307/1107	4
	5	CHEM 1307/1107 & 1308/1108	8
Computer Science A	3	CS 1410	4
English: Language and Composition	3	ENG 1301	3
English: Literature and Composition	3	ENG 1302	3
Mathematics: Calculus AB	3	MATH 2401	4
Mathematics: Calculus BC	3	MATH 2401	4
Physics B	3 or 4	PHYS 1307/1107	4
	5	PHYS 1307/1107 & 1308/1108	8
Physics C: Mechanics	3		4
Physics C: Electricity and Magnetism	3		4
Psychology	3	PSY 1303	3
Spanish	3 or 4	SPAN 2301 & 2302	6
	5	SPAN 2301, 2302 & 3301	9

College Level Examination Program

EXAMINATION	A GRADE OF	EARNS CREDIT FOR UH-D COURSE(S)	SEMESTER HOURS
American Government	50	POLS 2304	3
American Literature	50	ENG 2311/2312	6
Analyzing and Interpreting English Literature	50	Sophomore literature	3
College Algebra	50	Math 1301	3
College French	50	FREN 1401/1402	8
College Level Spanish Language	50	SPAN 1401/1402	8
English Literature	50	ENG 2313/2314	6
Freshman College Composition	50	ENG 1301	3
General Biology	50	BIOL	4
General Chemistry	50	CHEM	4
History of the United States I	50	HIST 1305	3
History of the United States II	50	HIST 1306	3
Human Growth and Development	50	PSY 2310	3
Information Systems and Computer Applications	50	CIS 1301	3
Introductory Psychology	50	PSY 1303	3
Introductory Sociology	50	SOC 1303	3
Principles of Accounting	50	ACC 2301/2302	6
Principles of Macroeconomics	50	ECO 2301	3
Principles of Microeconomics	50	ECO 2302	3
Trigonometry	50	MATH 1302	3
Western Civilization I	50	HUM or SOS elective	3
Western Civilization II	50	HUM or SOS elective	3

Elective credit

Directed Studies Courses

A directed studies course allows students to work directly with a faculty member on an individual basis. This type of study is intended to expand the curriculum and may not duplicate an organized course. A directed studies course requires a term paper, research study or comparable project.

Students wishing to enroll in a directed studies course must be juniors or seniors and have a grade point average of at least 3.0, with a grade point average of at least 3.3 in the specific area of the directed studies course.

Procedures for enrolling in directed studies courses are available in each academic department. Degree requirements may limit the number of hours of directed studies that may be applied.

Auditing Courses

To audit a course is to enroll in a course on a noncredit basis. Students wishing to audit courses should contact Enrollment Services. Students auditing courses pay regular tuition and all other applicable fees as set forth in this Catalog.

A change to credit status may not be made after the student has registered to audit a course. Changes from credit status to audit status in a course must be made prior to the end of the official day of record.

Grading System and Standards

Academic Honesty

The Academic Honesty Code is embraced by all members of the University of Houston-Downtown academic community and is an essential element of the institution's academic credibility.

Academic honesty is the cornerstone of the academic integrity of the university. It is the foundation upon which the student builds personal integrity and establishes a standard of personal behavior. The honesty policy is designed to encourage honest behavior and is jointly administered by faculty and students.

The Honesty Code is the university's standard of honesty. It states: **WE WILL BE HONEST IN ALL OUR ACADEMIC ACTIVITIES AND WILL NOT TOLERATE DISHONESTY.**

The Academic Honesty Policy is designed to address, in a uniform manner, cases of alleged violation of the Honesty Code.

It is each student's responsibility to read and understand UH-Downtown's policy on Academic Honesty. For specific information contact the Student Affairs Office.

Grading System

The following grades are included in the calculation of grade point averages:

GRADE	GRADE POINTS
A Superior	4.0
B Above Average	3.0
C Average	2.0
D Below Average	1.0
F Failure	0.0

The following grades are not included in the calculation of grade point averages:

GRADE	
A*	Non-credit grade
B*	Non-credit grade
C*	Non-credit grade
I	Incomplete
IP	In Progress
Aud	Audit
S	Satisfactory (passing)
U	Unsatisfactory (not passing)
W	Withdraw

I-Incomplete

An incomplete grade is given only when an unforeseen emergency prevents a student from completing the course work and only with the instructor's approval. A grade of I will be changed to a passing grade if the missing work is completed satisfactorily by the deadline set by the instructor and no later than before the end of the long semester immediately following the term in which the grade was received. An incomplete grade that is not removed by this deadline becomes an F.

Repetition of a course for which an incomplete grade was received does not affect resolution of the original grade.

An incomplete grade earned in a student's graduating semester is computed as an F in determining grade point average.

IP-In Progress

The grade of IP (In Progress) may be given in some developmental courses and the Writing Proficiency Exam. In the calculation of grade point average, a grade of IP is treated as a W. To receive credit for a course in which an IP was assigned, a student must register for the course again and earn a passing grade.

S-Satisfactory

The grade of S (Satisfactory Passing) may be earned in field experience courses and certain other courses. Credit received with a grade of S is not part of the grade point average calculation.

W-Withdrawal from Courses

Students will not receive a grade if they withdraw from a course by the Official Day of Record.

Students automatically receive a grade of W for any course from which they withdraw after the Day of Record but before the end of Thursday of the 10th week during a long term and Thursday of the fourth week during a summer term.

Official Day of Record and withdrawal deadlines are published in the University Calendar found in the *Class Schedule*.

Note: Class days are defined as days on which the university has one or more classes scheduled; not the days for which an individual student is scheduled for his/her particular classes.

Additional policies applicable to graduate students are published in the specific master's degree handbooks.

Grade Point Average (GPA)

The grade point average is a measure of a student's academic achievement. Grade point averages are computed by multiplying the grade point value by the number of credit hours in each course, and then dividing the sum of all grade points obtained by the total number of hours attempted.

This formula represents the method of computing grade point average:

$$\frac{\text{Total Number of Grade Points}}{\text{Total Number of Semester Hours}} = \text{Grade Point Average}$$

The number of grade points earned for each course equals the hour credit value of the course multiplied by the points awarded for grades received. Grades of I (Incomplete), S (Satisfactory), U (Unsatisfactory), IP (In Progress) and grades marked with an asterisk (*) are not counted in the calculation of the grade point average, except for graduation. Grades of I will be calculated as F grades in determining grade point average for graduation.

Undergraduate students must meet a graduation requirement of a minimum 2.0 grade point average calculated on all grades earned at UH-Downtown. Some departments may specify more stringent requirements, such as a 2.5 grade point average in the major or a 2.5 grade point average in all upper-level courses.

Graduate students must meet a graduation requirement of a minimum 3.0 grade point average.

Appeal of Grades

Any grade which a student believes to be in error should be appealed: first to the instructor, then to the appropriate department chair, and finally to the appropriate dean. If an appeal is not made within one calendar year after the close of the semester in which the grade was received, the grade will be considered final and no appeal will be heard.

Undergraduate Dean's List

The Dean's List recognizes students who have achieved superior academic performance during the fall or spring semester. To be included on the Dean's List for a specific semester, a student must, during that semester, complete at least nine semester hours of college-level work, earn at least a 3.5 grade point average, and receive no grade of I or F. The Dean's List is published by the Provost's Office at the end of each fall and spring semester.

Repeated Course Policy

Effective Spring 1995, when a course is repeated, the last grade received in the course will be used in computing the grade point average.

Graduation with Honors

Students who complete bachelor's degree requirements with exceptionally high grade point averages receive degrees with honors. Those who earn a cumulative grade point average of 3.75-4.00 graduate *summa cum laude*, while a cumulative grade point average of 3.50-3.74 is required for *magna cum laude*. A grade point average of 3.25-3.49 is needed to graduate *cum laude*. In the computation of this average, all courses attempted at UH-Downtown are counted, including courses repeated, failed and passed, but excluding courses with grades of S, W or IP.

For candidates who complete some portion of their college work at other institutions, the cumulative grade point average of all work attempted at UH-Downtown and the grade point average of all college work is computed; the lower of the two averages is used as the basis for determining honors.

Students not eligible for *cum laude*, *magna cum laude* or *summa cum laude* honors may be eligible for College Honors. Students who have earned a GPA of 3.50 or greater in their last 60 hours attempted at UH-Downtown, including at least 30 upper-level hours, are eligible to receive the designation, College Honors.

Undergraduate Academic Probation and Suspension

Probation

Academic probation is a warning to the student that his or her academic record has been unsatisfactory. A student who is not making satisfactory progress toward meeting graduation requirements may be placed on academic suspension if this record does not improve.

A student is placed on academic probation at the end of any term (Fall, Spring, Summer I and Summer II combined) in which his or her cumulative GPA falls below the specified minimum cumulative GPA shown below. The cumulative GPA for academic probation and suspension is computed on all grades earned at UH-Downtown. Grades of I, IP, S or W are not counted.

SEMESTER HOURS	MINIMUM REQUIRED CUMULATIVE GPA
1-29	1.70
30-59	1.90
60 or more, or upon declaration of a major	2.00

Transfer students on suspension from their most recent institution of higher education will be placed on academic probation if admitted to UH-Downtown.

Students will remain on academic probation until their cumulative GPA reaches the specified minimum cumulative GPA or until they are suspended. Only courses taken at UH-Downtown may be counted in removing a student from academic probation.

Suspension

Suspension means that a student is ineligible to register for classes.

Students on academic probation will be suspended at the end of any term their cumulative GPA falls below the specified minimum cumulative GPA unless they earn a minimum GPA of 2.0 in that term.

A student's first academic suspension will become effective at the beginning of the next term and will remain in effect for that term only. The student may be granted earlier readmission at the discretion of the student's academic dean or the dean's designated representative.

The second time a student is placed on academic suspension, the length of the suspension will be indefinite. The student may be considered for readmission after one term and only upon appeal to the students' academic dean or the dean's designated representative.

The third time a student is placed on academic suspension, the suspension will be permanent. Any appeals for readmission following a permanent suspension must be initiated at the academic dean's office. The final decision rests with the Vice President for Academic Affairs and Provost.

Academic Amnesty

After a four-year absence, a student returning to UH-Downtown may petition his or her academic dean for academic amnesty. To be eligible, the student must not have attended any institution of higher education for the four-year period immediately preceding readmission to UH-Downtown. In addition, the student also must complete 24 semester credit hours with a minimum grade point average of 2.5 following readmission. The amnesty provision applies only to the application of credit toward a degree and computation of the student's grade point average. No grades on the student's permanent record are altered or deleted.

If academic amnesty is granted, all courses with grades of F or D earned prior to readmission are ignored in applying credit toward fulfillment of degree requirements and in future computations of the student's grade point average. A student granted academic amnesty relinquishes all rights to graduation with honors and any other academic recognition based on grade point average.

Fresh Start

A student wishing to take advantage of Fresh Start or readmission may apply only at the time of initial application or readmission at Enrollment Services.

Graduate Academic Probation and Suspension

The policies applicable to graduate students covering academic probation and suspension are published in the specific degree program handbooks

Student Records

Transcripts

Requests for official or student copies of transcripts are made with Enrollment Services. Requests may be made online, in person, in writing, or by fax.

Release of Student Records

UHD has a policy in conformity with the Family Rights and Privacy Act covering the release of student records.

Student Rights

1. Students have the right to inspect and review their education records within 45 days of the day the university receives the request.
2. Students have the right to request amendment of their education records that they believe are inaccurate or misleading.
3. Students have the right to consent to the disclosure of personally identifiable information in their education records, except to the extent that FERPA authorizes disclosure without consent.
4. Students have the right to file a complaint with the U.S. Department of Education concerning alleged failures by the university to comply with the requirements of FERPA.

Directory Information

At its discretion UHD may provide directory information to the general public without student consent. Directory information is defined by FERPA as follows:

- name
- address
- telephone number
- e-mail address
- date and place of birth
- dates of attendance
- most recent previous education institution attended
- major and minor fields of study
- degree/awards received
- participation in officially recognized activities

Students may request that directory information be withheld from the public by contacting the Enrollment Services Office at any time during the semester. Such requests must be made in writing and will remain in place until the student directs the office in writing that it is to be removed.

Disclosure of Education Records

In accordance with FERPA and at its discretion, UHD will disclose information from a student's education records without the written consent of the student to school officials who have a legitimate educational or administrative interest in the records. A school official is defined as a person employed by the university in an administrative, supervisory, academic, or support staff position (including the university's police department and health care staff); a person or company with whom the university has contracted (such as an attorney, auditor, or collection agent); a person serving on the Board of Regents; or a person assisting another school official in performing his or her official duties.

Procedure to Inspect Education Records

A student has the right to inspect his education records and challenge the contents. To review records, a student must make a request in writing to the registrar. The request must identify the record or records he wishes to inspect.

Procedure to Amend Education Records

If a student believes the information in his education record contains information that is inaccurate, misleading, or in violation of the student's rights of privacy, the student should submit a written request for amendment to the registrar. The request should clearly identify and correct the inaccuracy. The university will notify the student within a reasonable time regarding the request. If the request for amendment is denied the student has the right to a hearing. (This procedure does not govern grade appeals.)

Change of Name and Address

Any change in name or address must be reported to Enrollment Services. Addresses may also be changed online at www.uhd.edu. Name changes must be supported by legal documentation.

Graduation Requirements

General Degree Requirements for Graduation—Bachelor's Degree

For degree completion, at least 25 percent of the semester credit hours must be earned through instruction offered by UH-Downtown.

In addition to completion of specific degree requirements, all students must meet the requirements described below. The final 30 semester credit hours of course work toward the degree must be taken at the University of Houston-Downtown. At least 18 of these hours must be in the upper division and be approved by the student's major department. Only the appropriate academic dean may waive any portion of these requirements and only upon petition by a student who has extraordinary reasons.

A minimum grade point average of 2.0 calculated on all grades earned at UH-Downtown is required for graduation. In addition, a grade point average of 2.0 is required for all courses taken at UH-Downtown that apply toward the degree.

Students enrolled in any degree program at the University of Houston-Downtown who wish to take courses at another college or university (including any other institution in the UH System) and apply the credits toward the degree should consult with their degree program officer to be sure the courses apply to their degree program. A student taking courses under these provisions is responsible for having an official transcript from the second campus forwarded to Enrollment Services at UH-Downtown. The student also must request that an official evaluation of this transcript be made and reported to the appropriate degree program officer.

General Degree Requirements for Graduation—Master's Degree

The graduation requirements for master's degrees, including residency and thesis requirements, are described in the Academic Programs—Graduate section of this catalog.

Graduation under a Specific Catalog

A student usually graduates under the degree provisions of the Catalog in effect at the time of his or her first completed term of enrollment; where enrollment is defined as registration for and completion of at least one course. Students have the option of graduating under the Catalog in effect at the time of their major declaration or any subsequent Catalog. If degree requirements change during the time of the student's enrollment, the student may be required to meet the new degree requirements if the number of hours the student must take has not increased.

Exceptions:

- No Catalog more than 10 years old may be used.
- Students who interrupt their program for more than two consecutive long semesters for reasons other than military service shall be governed by the Catalog in effect at the time of re-entry to the university.
- Students whose enrollment is interrupted by military service must re-enroll within one year from date of separation from the service and no more than five years from the beginning of military service in order to remain under the provisions of the Catalog in effect at the time of original enrollment at the university.
- Students forced to withdraw for adequate cause before completion of their degree may upon readmission petition to graduate under the Catalog in effect at the time of original enrollment.
- Students who change their major shall be governed by the Catalog in effect at the time of the change.

Application for Graduation

Any student who plans to graduate from the University of Houston-Downtown must file an application for graduation with the degree-granting college and with Enrollment Services. Deadlines for filing applications and paying fees are announced in the calendar published in each *Class Schedule*. A graduation fee is required at the time of filing the application. If the student does not complete the requirements for the degree, application procedures must be repeated.

Commencement Exercises

Only students who complete all degree requirements and file an application for graduation with the degree-granting college and Enrollment Services may participate in the commencement exercises. The final decision on eligibility for graduation and participation in commencement exercises rests with the appropriate academic dean.

Students graduating with honors are so designated in the commencement program and wear special insignia with their academic regalia. Designation of honors for May and December graduates reflects only grades earned prior to the final semester. Designation of final honors on the transcript and diploma, however, is based on all work attempted.

Arrangements for obtaining academic regalia may be made through the university bookstore. Deadlines for ordering and paying for regalia are announced for each commencement.

Additional Bachelor's Degree

To qualify for a second UH-Downtown bachelor's degree, the candidate must:

- Earn a minimum of 30 semester hours credit more than needed to receive the degree requiring the fewest hours;
- Meet the general and specific requirements for each degree; and
- Have 30 semester hours of residence credit at UH-Downtown for each degree awarded by the university.

Student Affairs

Dan R. Jones, PhD, Interim Dean
Room 655-South, 713-221-8007

The University of Houston-Downtown's Division of Student Affairs offers a wide variety of services, programs and activities designed to augment the academic experience of students and to facilitate their development as whole persons.

Student Services

Office of Enrollment Services

Room 350-South, 713-221-8522

The Office of Enrollment Services assumes a leadership role in enrollment-related functions including outreach, recruitment, admission, registration, records management and student retention. For information on admission criteria see page 2.

Scholarships and Financial Aid

Room 330-South, 713-221-8041

The Office of Scholarships and Financial Aid provides assistance for qualified students in obtaining scholarships, grants and loans and college work-study aid to support their educational activities. For information regarding specific programs and requirements, see page 8.

Houston Resource Center

Room 355-North, 713-221-8201

The Houston Resource Center (HRC) serves as a clearinghouse for a variety of national, state and local scholarships. HRC also provides general financial aid guidance, college awareness, and comprehensive scholarship application assistance. The following are also available through this office:

- scholarship applications from both external and internal sources;
- a library of scholarship and financial aid reference books;
- on-site use of the ExPAN College Board scholarship and college database; and
- informational materials on various UH campus-based programs.

The HRC website, www.HoustonResourceCenter.org, provides additional links for obtaining scholarship information. Many of the scholarship applications available through the HRC office may also be downloaded directly from this website.

Counseling Services

Room 390-North, 713-221-8132

Counseling Services offers individual, couples and group counseling for a variety of academic and personal concerns. Appointments are recommended; however, walk-ins are welcome. Emergency counseling is also available during regular office hours. Groups for support on particular issues can be formed with enough student interest. Examples of groups that have met successfully and helped students include the Women's Support, Relationship, and General Counseling Groups. Study skills and test anxiety groups are also popular. Psychiatric and other referral services are also provided free of charge. Strict confidentiality is observed.

Career Services

Room 370-North, 713-221-8956

On the cutting edge of electronic technology, Career Services offers support, information, and counseling to students and alumni who wish to explore their career options. This office can help students develop academic and extracurricular programs to support and enhance career options through such tools as interest inventories and temperament indicators, available both in the Career Services Resource Center and on the Internet. CareerConnections, our online resume bank and job-listing site, lends itself well to the proactive, self-directed job search of today. Information about labor market and salary trends and career options are also available. In addition, UH's Field Experience program offers qualified students the opportunity to integrate classroom learning with work experience, granting up to six semester credit hours to students working in their field of study.

Student Health Services

Room 380-North, 713-221-8137

Student Health Services focuses on health promotion, disease prevention, and treatment of minor illnesses and injuries. Clinicians are available to provide the same primary care found

in most physicians' offices (including women's health), and offer referrals to specialists in the community when necessary. Routine laboratory services, pregnancy testing, and confidential HIV testing and counseling are provided. The pharmacy will fill in-clinic prescriptions at low cost and also offers some non-prescription medications for sale. Nurses are also available to provide counseling on a wide variety of health issues and offer special screenings and services throughout the year. Educational brochures on a variety of health-related subjects are also available. Applications for student health insurance may be obtained at the office of Student Health Services.

Student Activities

Room 280-South, 713-221-8573

The Office of Student Activities encourages and challenges students to become involved in non-academic components of campus life that enrich their campus experience, offer opportunities to develop leadership and other skills and allow them to make friends from a variety of educational and cultural backgrounds. The Office of Student Activities coordinates the functions of the Student Government Association, Campus Activities Board, a variety of clubs and organizations, Crossroads Festival, Culture on the Bayou, Sports and Recreation and the leadership development series.

Student Government Association

The Student Government Association (SGA) is the representative body for all UH-Downtown students. SGA is responsible for nominating students to serve on university committees and for chairing the Council of Organizations, which is the representative body for all clubs and organizations. SGA is involved in policy development activities through its participation in the shared governance process.

Campus Activities Board

The Campus Activities Board (CAB) is the programming body that brings a variety of educational, social and multicultural programs and activities to UHD. Any student interested in offering creative ideas about enhanced programs on campus is encouraged to volunteer with CAB.

Student Organizations

The varied personal and professional interests of UH-Downtown students are aptly reflected in the range of active clubs and organizations on campus. Professional organizations and departmental clubs provide opportunities for individuals with similar interests and goals to meet. There are also social clubs, cultural organizations and special interest groups. All clubs offer students educational opportunities, as well as personal enjoyment.

Student Publications

The Dateline

The Dateline is a student-run newspaper. With guidance from a faculty advisor and the Student Publications Advisory Committee appointed by the president, students are provided with a wide range of experiences in journalism.

Bayou Review

The Bayou Review is a literary journal, with biannual publication of poetry, essays, reviews, photos and drawings. The journal seeks to promote arts and humanities at UH-Downtown and to provide a forum for students who have an interest in creative writing.

Volunteer Center

UHD's Volunteer Center promotes public service and organizes support for volunteer opportunities in the community. The UHD Volunteer Center also serves as a clearinghouse of volunteer opportunities for UHD student organizations, individual students, faculty and staff

Sports & Recreation

Sports & Recreation provides members with programs and facilities that offer vigorous, fun-filled, health-promoting, physical activity conducive to wellness and personal development. Through a well-equipped recreational facility, fitness programs, intramural sports and sport clubs activities, members will be motivated to embrace a healthy life-style, which may ultimately enhance their quality of life.

Membership

The programs and services of Sports & Recreation are open to all UHD students, faculty and staff at no additional fees. Alumni Association members may purchase a Sports & Recreation Membership at an annual \$30.00 fee.

Facilities

The three-level, 30,000-square-foot Jesse H. Jones Student Life Center includes two ball courts, equipped for full or cross court basketball, volleyball, badminton, and indoor soccer, a multi-purpose studio designed for aerobics and martial arts, and a fitness center with state-of-the-art weight equipment and cardiovascular units. Lockers and showers are available.

Fitness Programs

Fitness programs are offered at various times throughout the week from certified instructors. Examples of some of the programs offered are: Aerobics, Karate, Tai Chi, Tae Kwon Do.

Intramural Sports

Intramural sports programs are designed to provide opportunities for UHD members to participate in organized sports activities. Individual and team sports are offered in over 20 different sports. Leagues are created for competitive and just-for-fun participants alike, and there are several activities where men and women combine for co-recreational sports.

Sport Clubs

Sport Clubs provide members with opportunities to share common interests and pursue active involvement and improvement in a sport or activity. Clubs are encouraged to represent the university at local, regional and national competitions.

Gameroom

The Gameroom provides a place for students to relax and unwind between and after classes. Students may choose to play billiards, ping-pong, foosball, darts, video games, chess, cards, listen to the CD jukebox, watch television or purchase snacks from the snack bar. The Gameroom conducts various tournaments, programs and parties. Tournament winners may go on to represent UHD in regional competition.

Locker Rental

Lockers, located on the 2nd, 3rd and 4th floors, are available for students to rent. Per-semester rates are \$5 for small, \$7 for medium and \$10 for large lockers. Lockers are assigned on a first-come (with receipt), first-served basis.

Special Services

International Students

Room 350-South, 713-221-8677

Within Enrollment Services, the Office of International Admissions supports the academic and cultural experience of international students at the University of Houston-Downtown. The office processes admission applications and provides immigration counseling. To ease the transition to living and studying in the United States, the office coordinates a special orientation for incoming international students and offers personal assistance whenever possible.

The office also provides cultural programming and immigration workshops for international students and serves as a resource to students and faculty with information about studying abroad, international exchange programs and conferences.

New Student Orientation

New Student Orientation introduces new students to the academic community at UH-Downtown. It is designed to meet the special needs of all students entering the university for the first time and to help make the new student's transition to the university a smooth and enjoyable one.

New Student Orientation programs are offered for the summer, fall and spring semesters. Programs occur early in the summer for new students entering the university during a summer session, later in the summer for those entering in the fall, and during the fall for those students preparing to enroll in the spring semester.

Orientation also offers currently enrolled students the opportunity to develop their leadership skills and make new friends by becoming leaders in the program.

Connections

Connections is a mentoring program available to all first-time students during their first semester at UH-Downtown. A new student is linked with a university student who serves as the new student's mentor. Mentors help new students achieve success during their first semester at UH-Downtown by pointing out useful resources, offering helpful hints for personal and academic growth, providing support, and serving as friends and advocates.

Partners in Leadership (PIL)

Partners in Leadership is a semester-long leadership development program offered to culturally diverse groups of UH-Downtown students. Selected students, in partnership with faculty, staff and community leaders, engage in experiential leadership training and seek ways to become agents for positive change in society. This program is currently offered during the fall semester.

The Partnership in Leadership Association (PILA) is an alumni organization of the Partners in Leadership program. The goal of the association is to share what has been learned in the program with the UH-Downtown community and the larger community.

Preventing the Abuse of Substances and Self (PASS)

PASS provides confidential services aimed at prevention of alcohol and drug abuse and other addiction-related behaviors. Free substance-abuse screening, individual counseling, group counseling, workshops, outreach, consultation and referral services are offered. The PASS counselor is a certified alcohol and drug abuse counselor and may be contacted in person or by calling the PASS confidential line at 713-221-8989. Interested students may join the PASS Posse, a volunteer group devoted to fighting the war on drugs.

Testing Services

Room 370-South, 713-221-8027

To support new and current students, Testing Services personnel administer UH-Downtown, state and national tests. Local prepared tests include the Writing Proficiency Examination and the foreign language (Spanish) placement examinations. Several national tests are provided by testing personnel, including the General Education Development (GED), College Level Examination Program (CLEP), PRAXIS/School Leadership Series, Law School of Admission Test (LSAT), Medical College Admission Test (MCAT), Texas Academic Skills Program (TASP), American College Testing Assessment (ACT) and the SAT I and II. Registration deadlines are about one month prior to test dates. Registration information and forms for most tests are contained in test bulletins available in Testing Services, Room 370-South.

The WriterPlacer (WP) and Accuplacer, which are approved TASP alternatives recommended to new college freshmen, are offered by Testing Services. The UHD TASP Alternative test is available to any student who has never taken TASP, QuickTASP (QT), or any TASP alternative before. QuickTASP and UHD TASP Alternative are offered for UHD students only.

Cultural Enrichment Center

The Cultural Enrichment Center provides support for the recruitment and retention of minority students and engages in programs that offer greater access to higher education for students at UH-Downtown. The center also provides research and evaluation to promote effective program development, extend cooperative efforts with the Mexican-American and African-American Studies Programs at the University of Houston, and increase activities in support of outreach efforts with Houston area public schools.

The center has an activities fund to encourage the university community's participation in events that may be of special interest to minority students or that increase awareness of ethnic and cultural issues in society. The fund is offered in support of speakers, workshops, publicity and activities undertaken on behalf of the center.

General Information

Student Parking

Student parking is available at UH-Downtown in three different areas: Daly Street Lot (North Main and Daly), Shea Street Lot (North Main and Shea) and Naylor Street Lot (North Main and Naylor). Shuttle bus service is available from the Daly Street Lot, providing service at regular intervals to the One Main Building.

Students who park in any UH-Downtown parking lot are required to register their vehicles with the Parking Office and obtain a permit to display on the vehicle. The university reserves the right to control the availability of student parking areas to meet the demand for parking for special events. The parking fee is subject to change by the Board of Regents.

Dining Facilities

Dining facilities are located on the third floor of the new Academic Building. The food court offers home-cooked entrees, pre-packaged salads, and deli sandwiches plus name brand items such as "Dunkin Donuts" and "Otis Spunkmeyer" cookies and muffins. There are five fast food franchises; Taco Bell, Pizza Hut, Burger King Express, Little Kim Son, and Subway Sandwiches. The coffee-house features a variety of specialty coffees and "granitas."

Bookstore

The university bookstore is housed in the One Main Building. It offers new and used textbooks, academic trade and reference titles, school supplies, clothing and insignia items, and computer software. Also available are greeting cards, snacks, postage stamps, health and beauty aids, and magazines.

O'Kane Gallery

The Harry W. O'Kane Gallery, established in 1970, was made possible by gifts from Harry W. O'Kane, Mary W. Bingman, and the Humphreys Foundation. Gallery Director Mark Cervenka and the O'Kane Gallery Task Force select five to six exhibitions annually of artworks by emerging and established artists, exhibitions that serve the diverse interests of the students, faculty, and staff of the University of Houston-Downtown and those of the downtown Houston community. These shows of contemporary artwork, in all media, provide educational support to various university courses and to nearby schools, while the gallery itself functions as a site for university forums, meetings, and receptions. Exhibitions are free and open to the public.

O'Kane Theatre

The Harry W. O'Kane Theatre, established in 1970, was made possible by gifts from Harry W. O'Kane, Mary W. Bingman, and the Humphreys Foundation. UH-Downtown presents one theatrical production each long semester in the O'Kane Theatre. Participation is open to students, faculty, staff and alumni. The theatre, when not in use for theatrical productions, is used for various other university activities and events throughout the year.

Weekend College, Distance Learning and Off-Campus Programs

To meet the needs of its busy students, UHD strives to offer courses at locations, in formats and at times that insure broad flexibility for students to pursue their degrees. Courses are available on-line via the internet and through tape purchase programs. The Weekend College provides opportunities for students who can only take courses on the weekend. And for students who live or work in the suburban Houston areas, UHD offers programs at UHS at Sugar Land, UHS at Cinco Ranch, The University Center in The Woodlands and San Jacinto College North. Courses taken off-campus may apply to any UHD degree program in which they are ordinarily accepted. Students enjoy the ability to tailor their

schedule to meet individual needs by taking courses at multiple locations or using multiple formats.

Students taking off-campus courses (on-line, tape purchase, instructional television or at one of the off campus locations) may be assessed an off campus course fee. Specific details about these off-campus fees are available through the UHD website and in the *Class Schedule*.

The Weekend College

The Weekend College gives students the opportunity to complete their college degree by taking classes on Saturdays or Friday evenings. Students have a choice of two degree programs, the Bachelor of Business Administration with major in General Business or Purchasing and Supply Management and the Bachelor of Science in Interdisciplinary Studies.

Course offerings in the Weekend College are scheduled to help a student who already has 60 hours of credit to complete a degree program. Although there is a strong upper-level course focus, some freshman- and sophomore-level courses are also offered.

Off-Campus Programs

On-Line Courses

www.uhdonline.uhd.edu

The rapid expansion of access to the Internet has created new opportunities for meeting UHD students' educational needs. UHD offers a growing selection of courses delivered over the web in support of degree programs. The courses are organized to provide students with a variety of activities designed to enhance the educational experience while providing the student with flexibility in taking the course. Students generally work within defined time-frames for completion of course modules, they often have the opportunity to interact directly in real-time with fellow students and their professor through chats and bulletin board discussions.

Telecourses

To give students more flexibility in arranging their schedules, UHD offers a selection of telecourses, presented in a series of video segments and accompanied by specially prepared academic materials. Students may check out tapes from the UHD library. Some telecourses are also broadcast on the Houston Access station. Registration may be done by phone or in person, just as for any other UHD course. Students enrolled in a telecourse may be required to attend an orientation session.

UHS at Sugar Land

www.uhsa.uh.edu/fb
14000 University Blvd.
Sugar Land, Texas 77479

281-275-3300

William O'Neill, Coordinator
281-275-3323
email: O'Neill@uhd.edu

In April 1996, the Texas Higher Education Coordinating Board granted approval to the University of Houston System to form a partnership among the four UH System universities (University of Houston, UH-Clear Lake, UH-Downtown, and UH-Victoria), Houston Community College System, and Wharton County

Junior College to begin offering course work leading to 29 bachelor's and master's degrees.

The two community college partners offer lower-division courses; the UH System universities offer junior, senior, and master's courses. Courses leading to a degree may be offered by faculty from more than one university, but students register with the university that awards the degree they are pursuing. Instruction is delivered in several forms: live on-site; interactive TV on-site; video tape on-site; videotape purchased for home viewing; KUHT-TV Channel 8 at home; and on-line.

Degrees offered by UH-Downtown include the Bachelor of Business Administration with majors in General Business, Accounting, Management, and Marketing; the Bachelor of Arts in Interdisciplinary Studies with elementary certification; the Bachelor of Science with majors in Computer Science, Criminal Justice, and Interdisciplinary Studies; and the Master of Science with major in Criminal Justice.

For additional information, stop by the Information Center or the UHS at Sugar Land office, 14000 University Blvd., Sugar Land, or call 281-275-3300.

The University Center in The Woodlands

www.tuc.edu

The University Center
3232 College Park Drive
The Woodlands, Texas 77381

Louis Evans, UHD advisor
281-618-7140; 936-273-7510

The University Center in The Woodlands is a partnership of six universities including the University of Houston-Downtown and the University of Houston, and the North Harris Montgomery Community College District. Degrees offered by UHD include the Bachelor of Science in Interdisciplinary Studies, the Bachelor of Business Administration in Marketing, the Bachelor of Business Administration in Finance, and the Bachelor of Business Administration in Computer Information Systems.

Students complete lower-division course work at one of the four colleges of the North Harris Montgomery Community College District. UHD offers the junior and senior courses leading to the degree. As at UHS-Sugar Land, instruction is delivered in several forms; live on-site; interactive TV on-site; video tape on-site; video tape purchased for home viewing; KUHT-TV Channel 8 at home; and on-line.

UHS at Cinco Ranch

www.uhsa.uh.edu/cr
4242 South Mason Road
Katy, Texas 77450

281-395-2800

The newest addition to off-campus locations is the University of Houston System at Cinco Ranch in West Houston. UHS-CR is similar in organization to UHS at Sugar Land. It is a partnership of the four UH System universities (University of Houston, UH-Clear Lake, UH-Downtown, and UH-Victoria) and Houston Community College System.

Degrees offered by UHD include the Bachelor of Business Administration with majors in General Business, Accounting, Management, and Marketing; and the Bachelor of Science in

Interdisciplinary Studies. Students complete the lower division requirements for the undergraduate degree at one of the HCC System campuses. UHD provides the junior and senior level courses required by the degree on-site at the Cinco Ranch location. As at the UHS Sugar Land and The University Center, instruction is delivered in several forms: live on-site; interactive TV on-site; video tape on-site; video tape purchased for home viewing; KUHT-TV Channel 8 at home; and online.

San Jacinto College North

The University of Houston-Downtown teaches a number of courses on the campus of San Jacinto College North, 5800 Uvalde, Houston, 77049. These classes are in support of the Bachelor of Science, with a major in Criminal Justice, and the Bachelor of Arts, with a major in Interdisciplinary Studies (Elementary Education); but the courses may apply to any UHD degree program in which they are ordinarily accepted. The courses are being offered by UHD as off-campus courses. Students can take up to 18 hours of off-campus courses and count them toward a degree program. The courses meet in rooms of the San Jacinto College North Library Building.

Continuing Education and Professional Development

Education and training are provided through three major units: the Applied Business and Technology Center, the Criminal Justice Training Division (see listing under the Criminal Justice department) and the English Language Institute.

Applied Business and Technology Center

Room 606-South, 713-221-8032

The Applied Business and Technology Center is dedicated to responding to the needs of business and industry. With continuing changes in technology, jobs can become obsolete almost overnight. The many changes that are emerging in the workplace make lifelong education a necessity, not a luxury.

- Hands-on training courses range from entry to advanced levels. The Applied Business and Technology Center is an Authorized Premier Autodesk training center offering classes related to AutoCad and 3D Studio Max, Microsoft Authorized Academic Training Program partner offering training classes required to become a Microsoft Certified Systems Engineer (MCSE), and Oracle Academic Initiative partner offering training programs related to Oracle database. In addition, hands-on training is provided on MicroStation, several programming languages and various business applications.
- The center has an extensive consulting service which customizes courses to meet special industry requirements. Area corporations and agencies often contract with the center to provide their training needs in business and technology. In addition, national and foreign corporations often contract with the center to deliver services throughout the United States and abroad.

English Language Institute

Room 606-South, 713-221-8047

The English Language Institute (ELI) at the University of Houston-Downtown is a noncredit English language program for international students, permanent residents and U.S. citizens who wish to improve their English language proficiency. ELI students typically represent more than 25 countries. The program's curriculum and programs promote English language and American culture learning. ELI is a member of the American Association of Intensive English Programs (AAIEP).

The ELI's intensive daytime program emphasizes preparation for university academic studies through course work in reading, writing, grammar, listening and speaking. Class work is supported by computers, videos, books and a listening laboratory. Content courses at upper levels use university topics such as literature, business and current events to initiate students into university study. The ELI's seven-level program also includes TOEFL (Test of English as a Foreign Language) preparation. However, students who successfully complete the advanced level of the program may be recommended to attend academic classes at UH-Downtown without the 550 TOEFL score generally required of international students applying to the university. ELI graduates receive three hours of UHD elective credit.

Field trips and social activities are an important function of the ELI. Students from other countries are given the opportunity to learn about American culture while they are learning the language. Course content supports this as well. Students learn how to navigate the American educational system during the ELI course.

The ELI program in Intercultural Communication for the Global Professional offers seminars in doing business with Mexico, Russia and other countries, as well as a variety of workshops that facilitate business dealings in multicultural settings. ELI provides special training for professions in language skills.

ELI faculty members participate in professional organizations such as Teachers of English to Speakers of Other Languages, the Association of International Educators, and the American Association of Intensive English Programs. The ELI also draws on the expertise of visiting professors from academic institutions in other countries, such as the Universidad Autónoma de Nuevo León in Monterrey, Mexico, to enhance its various programs. In addition, the ELI develops individual English language learning programs for special international groups sponsored by public or private agencies abroad.

Special Programs

Study Abroad Programs

The University of Houston-Downtown is a charter member of the Texas Consortium of Study Abroad Programs. Academic year and semester programs of study are available in Mexico, England, Ireland, France, Italy, Russia, Spain, the Czech Republic, Austria, Argentina, Australia, Japan, and South Africa. In addition to more formal courses of study, faculty-led programs are occasionally offered in conjunction with various academic classes. Recent faculty-led programs have visited China, Mexico, and Israel.

All currently enrolled UH-Downtown students planning to take part in a UHD sponsored or approved study abroad program are eligible to apply for financial support from the International Education Student Fee Fund. Depending on the cost, program length, and student interest in a particular study abroad program, a limited number of grants up to \$2,000 may be available to help supplement the cost of a study abroad program.

Information on study abroad programs, scholarships and grants is available in the Provost's Office, Room 950-South.

Disabled Student Services

Room 409-South, 713-226-5227

Disabled Student Services meets the special needs of disabled students in the university. These services are designed to assist students and instructors with placement testing; priority registration and scheduling; academic advising and counseling; and testing accommodation, including taped and enlarged tests, and proctored, extended-time testing. In addition, staff members advise instructors on classroom accommodations, arrange tutoring services, and serve as liaison between disabled students and faculty, and between disabled students and community agencies.

Section 504 of the Rehabilitation Act of 1973 stipulates that disabled students must be accommodated so that they may achieve at the level of which they are capable. Detailed information may be found in the *Disabled Requirements Handbook* of the Federal Programs Advisory Service, U.S. Department of Education. Additional information is available in the Disabled Student Services office.

Academic Programs—Undergraduate

General Education

General Education and the College Curriculum

The granting of a college degree signifies having reached a level of intellectual development that merits formal recognition. Intellectual development can be measured both in terms of depth and breadth of knowledge, and a college degree should signify growth in both dimensions. In most college programs, students demonstrate depth of knowledge by completing courses required in the major field of study.

Breadth of knowledge is demonstrated by satisfying a group of general education requirements that are shared by students in all majors. Whereas the aim of the major field of study is to provide experiences defining membership in a disciplinary community, the aim of the general education program is to provide experiences that define what it means to be a college-educated person. The centerpiece of the general education program is called the “core curriculum” because these courses comprise the core of the college experience. The goal of UH-Downtown’s general education program is that graduates will demonstrate:

- The ability to view events from a variety of perspectives, especially including different historical and cultural perspectives;
- An awareness of the different ways of pursuing knowledge, including the methods of scientists, and of those engaged in the arts and humanities;
- Knowledge of, and sensitivity to, ethical and moral standards;
- Knowledge of, and a degree of skill with, new technologies;
- The ability to communicate clearly and effectively, and to use various media to transmit and process information.

In order to achieve these goals, the general education component of all degrees earned at UH-Downtown consists of four parts: courses satisfying the common core requirements, application course requirements, enhancement course requirements, and the Writing Proficiency Examination. Each of these components is described below:

Common Core Requirements

Students in all UH-Downtown degree programs must complete a common core of courses consisting of at least 42 semester credit hours. If any course taken to fulfill a core requirement has a corequisite, the corequisite course must be taken concurrently. For instance, if a student chose to fulfill the Natural Sciences requirement by taking BIOL 1301, the corequisite lab course, BIOL 1101, would also have to be taken in the same semester. The following table lists the disciplinary components of the core, the number of semester credit hours (SCHs) required in each

component, and the UH-Downtown courses that may be used to fulfill these requirements. Departments often suggest certain courses that they prefer their majors to take to fulfill some of the core requirements, so students should carefully study the degree plans that interest them. Degree plans may be found in the sections of this Catalog describing the departments’ programs, and in degree program brochures available in departmental offices.

DISCIPLINARY COMPONENTS	SCHs	UHD COURSE OPTIONS
Communication		
English Composition	6	ENG 1301, 1302
Speech	3	One course from COMM 1301, 1303, 1304, 1305, 3302, 3304, 3306
Mathematics	3	Any MATH course numbered 1301 or higher
Natural Sciences	6	Two 3-hour courses from BIOL, CHEM, GEOL, MBIO, or PHYS that include lab hours or have corequisite 1-hour labs.
Humanities and Visual and Performing Arts		
Fine Arts	3	One course from ART, DRA, MUS
English Literature	3	Any literature course
Social and Behavioral Sciences		
U.S. History	6	Two courses from HIST 1305, 1306, 2303, 2309
Political Science	6	POLS 2303, 2304
Social/Behavioral Sciences	3	One course from ANTH 2301, 2302; CJ 1301; ECO 1301; GEOG 1301, 1302; PSY 1303; SOC 1303
Computer Literacy	3-4	One course from CIS 1301; CS 1305, 1408, 1410; ENGR 1400; HUM 2305
Total Hours	42-43	

A student transferring to UHD who has completed the common core requirements at another Texas institution of higher education will receive credit for each of the core courses transferred, and will be considered to have fully satisfied all of UHD’s common core requirements.

A student transferring to UHD who has completed some, but not all, of the common core requirements at another Texas institution of higher education will receive credit for each of the core courses transferred, and will be considered to have fully satisfied the corresponding common core requirements at UHD.

The student must still satisfy any remaining UHD common core requirements.

A student concurrently enrolled at more than one institution of higher education should follow the core curriculum requirements in effect for the institution where they are classified as degree-seeking students.

Time Frame for Completing Common Core Requirements

The common core of the general education program is designed to provide students with the academic skills and knowledge that constitute the foundation of a baccalaureate education. The specialized course work taken in the major field of study builds upon this foundation, so it is necessary for students to complete core requirements early in their course of study.

Writing and computational skills are especially critical for future academic success. Therefore, in the first semester in which they are eligible to do so, students must enroll in the courses that will satisfy the English composition/rhetoric requirement (ENG 1301 and ENG 1302), and the courses that will satisfy the mathematics requirement (any MATH course numbered 1301 or higher), and students must continue to enroll in these courses until they have been successfully completed.

Students are encouraged to complete all other common core requirements before enrolling in any upper-division (3000-level and 4000-level) courses. Students may not take the writing skills courses within their major until they have successfully completed the Writing Proficiency Examination.

Application Course Requirements

The application course requirements are intended to ensure that the communication and analytical skills learned in common core courses are applied and further developed. Application courses are required in the following two areas:

Writing Skills

In addition to the common core requirements in English composition and literature, students must take two upper-division courses that include substantial written assignments. These courses, designated as "W courses" in degree programs, assure students of opportunities to use and further refine their writing skills within the context of the major field of study.

Nonverbal Analytical Skills

In addition to the common core requirements in mathematics and computer literacy, students must take one course that makes use of the skills learned in these core courses to solve problems related to the major field of study. These courses are designated as "S courses" in degree programs.

Enhancement Course Requirements

Enhancement courses represent another way in which certain objectives of the general education program are embedded in courses beyond those in the common core. Each degree program includes certain courses that (1) give significant emphasis to ethical and moral issues, and (2) engender in students a

greater appreciation of their membership in a world community marked by vast diversities of every type.

Writing Proficiency Examination

All students must take and pass the Writing Proficiency Examination after completing 60 semester credit hours and before completing 75 semester credit hours. Transfer students with 75 or more hours must attempt the examination during their first semester at the university. The purposes of the examination are to determine if students have retained the language skills learned in their lower-division composition courses, and to ensure that students proceeding to upper-division work possess college-level writing skills. Examination dates and instructions for registering for the examination are given in each semester's *Class Schedule*.

University College

UNIVERSITY COLLEGE

Dan R. Jones, PhD, Dean
Room 655-South, 713-221-8007

All new undergraduate students to UH-Downtown are first admitted into University College. University College is responsible for assisting students in their academic progress until they officially declare a major. Students are encouraged to officially declare their major when they have completed 30-60 credit hours of college-level courses. See the Academic Advising Center for specific requirements and the procedures for declaring a major.

Academic Advising Center

Room 380-South, 713-221-8513

The Academic Advising Center is a place where UHD students can meet with an academic advisor to discuss academic and other university issues. Academic advising is an important part of a student's life at UHD. Seeing an academic advisor each semester will help students to remain in compliance with state and university policies, and to make satisfactory progress toward attaining their degrees.

Academic advisors are available to help students select courses each semester from the university's general education curriculum, to provide information regarding campus resources, and to help students declare a major. Academic advisors are also available to discuss course work evaluations from previous colleges and universities that students may have attended.

The Academic Advising Center is open from 8:00 to 6:00, Monday through Thursday, and 8:00 to 5:00 on Friday. No appointment is necessary.

Academic Counseling Center

Room 655-South, 713-221-8101

Academic counselors are available to provide assistance and guidance to students on academic issues. Counselors work with students on setting goals, managing time, arranging for tutoring in selected subjects, and dealing with unforeseen difficulties that

may jeopardize academic success. Support programs are also available to help students with physical or learning disabilities.

UH-Downtown Learners Community

Room 405-South, 713-221-8286

The UH-Downtown Learners Community, funded under the federal Strengthening Hispanic Serving Institutions program, provides a web of integrated services to students entering UH-Downtown as first-time-in-college freshmen. The project's goal is for Learners Community students to remain enrolled from one fall semester to the next, make satisfactory academic progress, and graduate within six years with a baccalaureate degree. Program components include linked courses, supplemental instruction, academic counseling (including midterm grade reporting and a probation recovery program), financial aid counseling, faculty mentoring, a library resources curriculum, and the Laptop Pilot Project.

GEARUP (Gaining Early Awareness and Readiness for Undergraduate Programs)

The GEARUP Program, funded by the U.S. Department of Education, is a partnership among Project GRAD, Houston Independent School District (Davis, Yates, and Wheatley feeder patterns), and partner universities (UH-Downtown, University of Houston, and Texas Southern University). GEARUP seeks to develop early college awareness in middle school students by establishing ongoing relationships with the faculty, staff, and students of local colleges and universities. UH-Downtown is a university partner to Marshall Middle School, and provides reading and mathematics tutoring, mentoring experiences, and an early college awareness curriculum to sixth and seventh graders.

Educational Talent Search and Upward Bound

Educational Talent Search: Room 455-South, 713-221-8992
Upward Bound: Room 437-South, 713-221-8515

Educational Talent Search and Upward Bound reach out to students in Houston public schools with programs and activities designed to encourage college-going rates among under-represented populations. These highly successful efforts have significantly increased the number of students who go on to college in the schools where these programs are present.

Academic Outreach Programs

UH-Downtown offers a variety of programs in cooperation with area high schools to encourage high school students to continue their education after graduation and to prepare them to succeed at the college level. These programs provide intensive training in reading development, English composition, critical thinking and analysis, and specific preparation in mathematics and the natural sciences.

Business

COLLEGE OF BUSINESS

Bobby G. Bizzell, PhD, Dean
Carl R. Ruthstrom, PhD, Assistant Dean
Room 1009-North, 713-221-8179

Business Student Records Office: Room 1037-North,
713-221-8689, Email: cobadvise@dt.uh.edu

Finance, Accounting and Computer Information Systems Department

Asghar Nazemzadeh, PhD, Chair
David Durr, PhD, Assistant Chair
Room 1005-North, 713-221-8017

FACULTY

Professors: Duangploy, Islam, Leavins, Marvasti,
Nazemzadeh, Rebhun, Smith, Wadhwa
Associate Professors: Bose, Chong, Durr, Hashemi, Omer,
Pelaez, Penkar, Robbins, Shelton,
Williams
Assistant Professors: Bressler, Chang, DeVries, Serrett
Emeritus: McNeill
One-Year Appointments: McMahan, Phelps

Programs of Study

Bachelor of Business Administration with majors in:

Accounting
Computer Information Systems
Finance
International Business

Minors in:

Accounting
Computer Information Systems
Economics
Finance
International Business

Management, Marketing and Business Administration Department

Forrest Aven, PhD, Chair
Caroline Ashe, EdD, Assistant Chair
Room 1005-North, 713-221-8017

FACULTY

Professors: Bizzell, Efraty, Evans, Jackson,
Johnson, Shipley, Woods
Associate Professors: Ashe, Aven, Goff, Hagedorn,
Ruthstrom, Spilger, Stanberry, Strain
Assistant Professors: Coy, Kaser, Kauffman, Maranville,
Mitchell, Nealy, Pointer, Stading
Instructor: Monteils
Emeriti: Eckles, Hebert, Robinson, Rooney,
Tinkler, Wilkinson
One year appointments: Cuevas, Ghosh, Horvitz

Programs of Study

Bachelor of Business Administration with majors in:

Administrative Management
General Business
Management
Marketing
Purchasing and Supply Management

Minors in:

Administrative Management
General Business (open only to students outside the College of Business)
Management
Marketing
Professional Land Management
Purchasing

Accreditation

The programs of the College of Business are accredited by the Association to Advance Collegiate Schools of Business-International.

Mission Statement

The College of Business prepares students for professional careers by stressing not only the skills and knowledge essential for success but also the wisdom and understanding necessary to become productive citizens. The mission of the College of Business is to provide education that develops an understanding and appreciation for the dynamic nature of the forces that shape business. The College of Business prepares students for success by offering them an opportunity to develop expertise and skills in a particular business discipline within the framework of a broad, well-integrated business curriculum that emphasizes analytical, communication and interpersonal skills and knowledge that enhance students' long-term employability and opportunities for advanced degrees. The college has a regional focus with emphasis on responding to the needs of the business and professional community in the Greater Houston area. Faculty maintain a close affiliation with the community through a variety of activities, including participation in local professional associations, leadership in professional development programs, supervision of student projects benefiting local businesses and organizations, and consulting.

The College of Business serves urban students in a small class setting that encourages interaction and draws upon the strengths of diversity in student age, ethnicity, work experience and cultural background. Excellence in teaching is the first priority of the college. Excellence is achieved through innovative pedagogy that emphasizes the application of theory and the development of discipline-based skills. In addition, research and scholarly activities are encouraged as essential components in maintaining faculty excellence.

The College of Business is committed to maintaining high-quality instruction by regularly examining its educational offerings and its delivery processes. Faculty, administrators and staff believe that the development of policies, programs and personnel that support excellence are most likely to emerge in a collaborative work environment. The college seeks to create a culture built upon mutual respect and appreciation for each person's contributions.

Objectives

To carry out this mission, the faculty of the College of Business has adopted objectives to guide the college's planning related to teaching, research and service. The teaching objectives have the highest priority and include:

- Providing a curriculum appropriate to the business environment and to the students' educational and career needs.
- Implementing the curriculum by means of a highly qualified faculty.
- Supporting students through quality courses, academic advising and flexible scheduling.

The objectives related to research and service have approximately equal weight. The research objectives include:

- Providing the organization, facilities and support to assist faculty research and publication.
- Encouraging presentation of research by written and oral means.

The service objectives include:

- Fulfilling responsibilities as members of the university faculty community in performance of assignments from university management.
- Encouraging faculty membership and active participation in professional organizations.
- Enhancing the partnership of the academic community with the business community and the public at large.

Consistent with the college's mission and objectives, each of the major programs is designed to prepare graduates to make immediate contributions as employees and to develop in them skills, knowledge and attitudes to deal effectively with the technological, economic and social uncertainties of the future.

One way by which the commitment of the business community to the quality of programs offered by the College of Business is demonstrated is by the funding of professorships. The college is honored to be the recipient of three such funds. In 1983, the Houston Association of Professional Landmen endowed the Petroleum Land Management Professorship. In 1987, a grant from Fiesta Mart was matched by the University of Houston System to establish the Fiesta Professorship in Accounting. In 2002, a grant from Marian and Speros Martel established the Martel Professorship in Computer Information Systems.

Beta Gamma Sigma

The College of Business is privileged to have a student chapter of Beta Gamma Sigma, the national business honorary society recognized by the AACSB-International. Its mission is to encourage and honor academic achievement and personal excellence in the study and practice of business. Each year, the University of Houston-Downtown Chapter invites to membership the juniors in the college who rank in the top 7 percent of their class and the seniors who rank in the top 10 percent of their class who are not already members.

Academic Requirements-Admission, Declaration of Major, Advising, Graduation

In order to declare a major in the College of Business, the student must first be admitted to the College. The admission policy is described in the "Academic Requirements for the College of Business," which is available in the Office of Business Student Services in Room 1041-North. The Application for Admission to the College of Business is obtained from the University College in Room 380-South. A student may be admitted to the College

of Business as early as the completion of 30 hours of college-level work. Once admitted, the student must declare a major by the completion of 60 hours of college-level credit.

Information concerning requirements for admission to the college, declaration of major, transferability of courses and requirements for graduation are available from the Office of Business Student Services in Room 1041-North.

An advisor must authorize registration for any course in the college that has a course prerequisite. A student may register by telephone if eligible. A student generally will not be allowed to register for any junior- or senior-level course in the College of Business until he/she has been admitted to the College of Business and has completed 60 hours of college-level work. Students not admitted to the College of Business who desire to take junior- and senior-level courses in the College of Business must have an overall grade point average of 2.0 on course work completed at the University of Houston-Downtown and be authorized by a College of Business advisor. Students may be dropped from any class for which they lack a prerequisite or a co-requisite. A course that is a prerequisite or co-requisite for another course may not be dropped unless the student drops both courses.

Students are responsible for meeting the requirements for graduation of the College of Business as well as those of the university. Therefore, students should become familiar with the academic requirements of the College of Business and should refer to them each time they plan their semester program of study. One requirement is that students must have a minimum 2.0 GPA on all course work taken in the College of Business to receive a BBA.

The final 30 semester credit hours of course work toward the degree must be taken at UH-Downtown. Prior to that time, students who wish to take junior- and senior-level courses at another college or university, including any other campus of the UH System, and apply the credits earned toward their degree, must request approval through the Office of Business Student Services in Room 1041-North. Courses taken without such approval will not be counted toward the fulfillment of degree requirements.

For degree completion, at least 25 percent of the semester credit hours must be earned through instruction offered by UHD. Additionally, 18 of the last 30 hours must be in upper division course work as approved by College of Business. Only the Dean of the College of Business may waive any portion of these requirements and only upon written petition by a student who has demonstrated extraordinary ability.

Courses of Instruction

Individual courses of instruction are subject to change or cancellation at any time and may not be offered each semester or every year. Students should be especially mindful that summer offerings are limited and vary from year to year. Therefore, careful planning is required if progress toward the degree is expected during the summer months.

Field Experience

Field Experience integrates theory learned in the classroom with practical work experience in a job related to the student's academic and professional goals. The work experience and the academic experience must be directly related. Positions may or may not be paid and may last the duration of the fall or spring

semester or the entire summer. Field Experience generally is not approved for students already employed in their area of study.

Eligibility for Field Experience enrollment includes at least 60 semester credit hours completed in the degree program, a minimum cumulative grade point average of 2.5 and prior approval of the department chair in whose area the course is being offered. Submission of applications and other preliminary procedures should be completed during the semester prior to the one in which the student wishes to enroll.

The College of Business allows up to two courses (6 semester credit hours) in Field Experience to be applied toward graduation requirements. These courses are graded on a pass/fail basis and do not apply toward calculation of the grade point average. Field Experience credit may NOT be used to satisfy minor program requirements.

Minor Program Requirements

Additionally, the College of Business offers a variety of minors to complement major programs. Both students pursuing a Bachelor of Business Administration degree and those pursuing other degrees offered by the university can select these minors. Students planning to take a minor in the College of Business who are not seeking a Bachelor of Business Administration degree are reminded that in compliance with the accrediting principles of AACSB-International, the course work taken in the College of Business, including all courses applicable to the minor, is limited to 25 percent of the credit hours applied toward graduation.

Information concerning the procedures for declaring a minor is available from the Business Student Services Office in Room 1037-North.

Bachelor of Business Administration

All majors within the Bachelor of Business Administration degree program administered by the College of Business share a common core of general education requirements and a common core of business course requirements. These two core areas must be completed in addition to the major discipline requirements.

Students must complete all general education core requirements prior to enrolling in upper-division courses. Upon completion of 30 hours, students should file for admission to the College of Business. Upon completion of 60 hours, students must file a declaration of major through the Office of Business Student Services.

Major in Accounting

Khursheed Omer, PhD, Coordinator

Room 1024-North, 713-221-8918

Accounting Faculty: Bressler, Duangploy, Leavins (Fiesta Chair), Omer, Serret, Shelton, Wadhwa, Williams

Accounting graduates have flexibility in career choices due to the wide variety of accounting specializations and the breadth of accounting applications. The program prepares graduates for careers in public accounting, accounting within business entities, or accounting within governmental or not-for-profit agencies. Accounting serves as an excellent background for students planning to pursue graduate studies or careers in law.

The program prepares graduates to pass all sections of the Uniform Certified Public Accountants exam and provides the basic courses related to preparing for the Certified Management Accountants exam as well as other specialized accounting certification exams.

The Texas Public Accountancy Act of 1991 requires that a CPA candidate sitting in Texas for the CPA Exam for the first time as of May, 1998 have (1) a baccalaureate degree with any major, (2) two basic accounting courses plus an additional 30 hours of accounting, (3) 20 hours of business related courses, and (4) a total of 150 unduplicated college transcript hours. The candidate is NOT required to complete a master's degree.

Contact the Texas State Board of Public Accountancy (512-505-5599) for clarification of part-time student exemptions and the 150-hour grace period.

General Education Requirements (42 hours)

All students seeking a bachelor's degree from the University of Houston-Downtown must complete the general education requirements that are described on p. 24 of this Catalog. These requirements include the common core requirements, application course requirements, enhancement course requirements, and the Writing Proficiency Examination.

Common Core Requirements

The common core requirements are described on p. 24 of this Catalog. The College of Business recommends that students who wish to major in accounting should fulfill the common core's Speech requirement by taking COMM 3306, the Mathematics requirement by taking MATH 1301, and the Computer Literacy requirement by taking CIS 1301. All other common core requirements may be fulfilled by taking any of the courses listed as options on p. 24.

Application Course Requirements

The writing skills requirement is satisfied by ENG 3302 and ADM 4301, which are included in the Business Core (see below). The nonverbal analytical skills requirement is satisfied by MATH 1306, which is also included in the Business Core.

Enhancement Course Requirements

The general education program's emphases on ethical and moral issues and the world community are addressed throughout the required Business Core. The College of Business faculty believes that in order for investigation of these issues to be most meaningful, they should not be studied in isolation but, rather, in direct relationship with the student's career path. Accordingly, within each area of the Business Core, material relevant to these issues is presented.

Writing Proficiency Examination

All students must take and pass the Writing Proficiency Examination after completing 60 semester credit hours and before completing 75 semester credit hours. Transfer students with 75 or more hours must attempt the examination during their first semester at the university.

Business Core Requirements (48 hours)

Lower Division

MATH 1305	Finite Math with Applications
MATH 1306	Fundamentals of Calculus with Applications
ACC 2301	Financial Accounting
ACC 2302	Managerial Accounting
ECO 2301	Principles of Economics I
ECO 2302	Principles of Economics II
BA 2301	Business Cornerstone

Upper Division

BA 3301	Legal Environment of Business
ENG 3302	Business and Technical Report Writing
FIN 3302	Business Finance
MATH 3309	Statistical Analysis for Business Applications I
MGT 3301	Management of Organizations
MKT 3301	Principles of Marketing
MGT 3332	Quantitative Decision Making
ADM 4301	Business Communications
BA 4302	Business Strategy

Accounting Major Requirements (27 hours)

ACC 3300	Analysis of Financial Reporting
ACC 3301	Intermediate Accounting I
ACC 3302	Intermediate Accounting II
ACC 3303	Cost Accounting
ACC 3304	Accounting Information Systems
ACC 4301	Individual Income Taxation
ACC 4302	Corporation Taxation
ACC 4303	Advanced Accounting
ACC 4304	Auditing

Electives (9 hours)

Lower-level electives (3 hours)
Upper-level Business electives (3 hours)
Upper-level Accounting electives (3 hours)

Total number of hours for BBA with major in Accounting: 126

Major in Administrative Management

Karen Kaser, EdD, Coordinator
Room 1018-North, 713-221-8051

Administrative Management Faculty: Ashe, Kaser, Nealy

In today's global society, business in the United States and abroad continues to expand. With this expansion comes an increased demand for qualified personnel who possess a high level of technical skills, and also managerial skills to guide and direct other people. The Administrative Management major provides students the opportunity to develop in such areas as records and information management, human resource management, information processing, and other administrative responsibilities. Students will acquire an understanding of the decision-making approach to office and virtual workplace management.

General Education Core Requirements

CIS 1301	Introduction to Computer-Based Systems
ENG 1301	Composition I
ENG 1302	Composition II
HIST 1305	U.S. History to 1877

HIST 1306 U.S. History after 1877
 MATH 1301 College Algebra
 POLS 2303 U.S. Government I
 POLS 2304 U.S. Government II
 Social and Behavioral Sciences (one of the following: ANTH 2301, ANTH 2302, CJ 1301, ECO 1301, GEOG 1301, GEOG 1302, PSY 1303, SOC 1303)
 Fine Arts (3 hours)
 Literature (3 hours, sophomore level or above)
 Natural Science (6 hours)
 Speech (3 hours) COMM 3306 will satisfy requirement
 Satisfactory completion of the Writing Proficiency Examination

Application Course Requirements

The writing skills requirement of the University General Education core requirements is satisfied by ENG 3302 and ADM 4301, which are listed as requirements in the business core below. The Nonverbal Analytical Skills requirement of the University General Education Core requirements is satisfied by MATH 1306, which is listed as a requirement in the business core below.

Enhancement Course Requirements

The general education core content requirements related to ethical and moral issues and the world community are addressed throughout the required business core courses. The College of Business faculty believes that these dimensions should not be studied in isolation; that to be most meaningful, they must be studied in direct relationship with the career path chosen by the student. Thus, within each area of the business core, relevant material related to these dimensions is presented.

Business Core Requirements

Lower Division

MATH 1305 Finite Math with Applications
 MATH 1306 Fundamentals of Calculus with Applications
 ACC 2301 Financial Accounting
 ACC 2302 Managerial Accounting
 BA 2301 Business Cornerstone
 ECO 2301 Principles of Economics I
 ECO 2302 Principles of Economics II

Upper Division

ENG 3302 Business and Technical Report Writing
 MATH 3309 Statistical Analysis for Business Applications I
 BA 3301 Legal Environment of Business
 CIS 3302 Management Information Systems
 FIN 3302 Business Finance
 MGT 3301 Management of Organizations
 MKT 3301 Principles of Marketing
 MGT 3332 Quantitative Decision Making
 ADM 4301 Business Communications
 BA 4302 Business Strategy (Policy)

The Administrative Management major requirements

ADM 2303 Information Processing I
 ADM 3301 Records Management
 ADM 3302 Supervision of Personnel
 ADM 3309 Management of the Virtual Workplace
 MGT 3302 Human Resource Management

Choose one:

MGT 3304 Labor Management Relations

or

MGT 3306 Compensation Management
 ADM 4302 Supervisory Problems
 ADM 4303 Administrative Management
 ADM 4311 Seminar in Administrative Management

Lower/Upper-level Outside College of Business

electives: 3 hours

Upper-level Business electives: 3 hours

Total number of hours for BBA with major in Administrative Management: 126

Major in Computer Information Systems

Ruth Robbins, EdD, Coordinator

Room 1044-North, 713-221-8594

Computer Information Systems Faculty: Bose, Chang, Chong, DeVries, Hashemi, Rebhun, Robbins

The Computer Information Systems (CIS) program has been designed in consultation with business computer practitioners and employers of business computer personnel. The program is patterned after the national model curriculum developed by educators and computer professionals, endorsed by the Association for Information Technology Professionals (AITP) and adopted by many universities throughout the nation. The CIS program received national recognition when it was named one of the outstanding undergraduate programs in the United States by the Data Processing Management Association (DPMA) and the DPMA Education Foundation.

Graduates of this program are prepared to design and implement computer information systems for small to medium-sized companies or to work in larger firms as business application programmers, programmer/analysts, systems analysts or in other computer information systems related positions. Graduates have experience programming and using software packages in mainframe, client-server and microcomputer environments. This program has been designed for the computer professional who is involved in increasing the operating efficiency and profitability of a business. It builds upon a sound general education base and combines courses in accounting, economics, management, marketing and finance with computer-based information systems courses.

General Education Core Requirements:

CIS 1301 Introduction to Computer-Based Systems
 ENG 1301 Composition I
 ENG 1302 Composition II
 HIST 1305 U.S. History to 1877
 HIST 1306 U.S. History after 1877
 MATH 1301 College Algebra
 POLS 2303 U.S. Government I
 POLS 2304 U.S. Government II

Social and Behavioral Sciences (one of the following: ANTH 2301, ANTH 2302, CJ 1301, ECO 1301, GEOG 1301, GEOG 1302, PSY 1303, SOC 1303)

Fine Arts (3 hours)

Literature (3 hours, sophomore level or above)

Natural Science (6 hours)

Speech (3 hours) COMM 3306 will satisfy requirement

Satisfactory completion of the Writing Proficiency Examination

Application Course Requirements

The writing skills requirement of the University General Education core requirements is satisfied by ENG 3302 and ADM 4301, which are listed as requirements in the business core. The Nonverbal Analytical Skills requirement of the University General Education Core requirements is satisfied by MATH 1306, which is listed as a requirement in the business core.

Enhancement Course Requirements

The general education core content requirements related to ethical and moral issues and the world community are addressed throughout the required business core courses. The College of Business faculty believes that these dimensions should not be studied in isolation; that to be most meaningful, they must be studied in direct relationship with the career path chosen by the student. Thus, within each area of the business core, relevant material related to these dimensions is presented.

Business Core Requirements

Lower Division

MATH 1305	Finite Math with Applications
MATH 1306	Fundamentals of Calculus with Applications
ACC 2301	Financial Accounting
ACC 2302	Managerial Accounting
ECO 2301	Principles of Economics I
ECO 2302	Principles of Economics II
BA 2301	Business Cornerstone

Upper Division

BA 3301	Legal Environment of Business
ENG 3302	Business and Technical Report Writing
FIN 3302	Business Finance
MATH 3309	Statistical Analysis for Business Applications I
MGT 3301	Management of Organizations
MKT 3301	Principles of Marketing
MGT 3332	Quantitative Decision Making
ADM 4301	Business Communications
BA 4302	Business Strategy

Computer Information Systems major requirements

CIS 2301	Computer Algorithms and Problem Solving
CIS 2303	Introduction to Business Application Programming
CIS 2304	Intermediate Business Application Programming
CIS 3301	Systems Analysis and Design
CIS 3303	Computer Hardware, System Software and Architecture
CIS 3305	Communications and Distributed Processing Systems
CIS 3306	Data Files and Data Bases
CIS 4312	Systems Development Project

Lower-level/Business electives: 3 hours

Upper-level Non-Business electives: 3 hours

Upper-level CIS electives: 6 hours (only 3 hours in either CIS 3399 or CIS 4380 are allowed)

Total number of hours for BBA with major in Computer Information Systems: 126

Major in Finance

Samuel H. Penkar, DBA, Coordinator
Room 1035-North, 713-221-8965

Finance Faculty: Durr, Pelaez, Penkar, Smith

The Finance area has experienced rapid growth in recent years due to the changing market conditions and the way businesses operate. Numerous opportunities are available for finance majors for a career in financial management with manufacturing and service companies. Financial institutions (banks, savings and loan associations, mutual savings banks, credit unions, mortgage finance companies and insurance companies) in Houston and elsewhere offer promising careers to aspiring and well-trained people. Similarly, there are many opportunities available in the investments field (brokerage houses, mutual funds, bank trust departments, financial planners). Students interested in real estate or international finance will find a wide range of courses from which to choose. The finance major prepares students for these careers as well as for certification as a Chartered Financial Analyst (CFA) or as a Certified Financial Planner (CFP). Courses in the Finance major provide a sound theoretical foundation of financial markets and financial management of business, together with the study of other aspects of business required of all business graduates.

General Education Core Requirements

CIS 1301	Introduction to Computer-Based Systems
ENG 1301	Composition I
ENG 1302	Composition II
HIST 1305	U.S. History to 1877
HIST 1306	U.S. History after 1877
MATH 1301	College Algebra
POLS 2303	U.S. Government I
POLS 2304	U.S. Government II

Social and Behavioral Sciences (one of the following: ANTH 2301, ANTH 2302, CJ 1301, ECO 1301, GEOG 1301, GEOG 1302, PSY 1303, SOC 1303)

Fine Arts (3 hours)

Literature (3 hours, sophomore level or above)

Natural Science (6 hours)

Speech (3 hours) COMM 3306 will satisfy requirement

Satisfactory completion of the Writing Proficiency Examination

Application Course Requirements

The writing skills requirement of the University General Education core requirements is satisfied by ENG 3302 and ADM 4301, which are listed as requirements in the business core below. The Nonverbal Analytical Skills requirement of the University General Education Core requirements is satisfied by MATH 1306, which is listed as a requirement in the business core below.

Enhancement Course Requirements

The general education core content requirements related to ethical and moral issues and the world community are addressed throughout the required business core courses. The College of Business faculty believes that these dimensions should not be studied in isolation; that to be most meaningful, they must be studied in direct relationship with the career path chosen by the student. Thus, within each area of the business core, relevant material related to these dimensions is presented.

Business Core Requirements

Lower Division

MATH 1305	Finite Math with Applications
MATH 1306	Fundamentals of Calculus with Applications
ACC 2301	Financial Accounting
ACC 2302	Managerial Accounting
ECO 2301	Principles of Economics I
ECO 2302	Principles of Economics II
BA 2301	Business Cornerstone

Upper Division

BA 3301	Legal Environment of Business
CIS 3302	Management Information Systems
ENG 3302	Business and Technical Report Writing
FIN 3302	Business Finance
MATH 3309	Statistical Analysis for Business Applications I
MGT 3301	Management of Organizations
MKT 3301	Principles of Marketing
MGT 3332	Quantitative Decision Making
ADM 4301	Business Communications
BA 4302	Business Strategy

Finance major requirements

FIN 3301	Small Business Finance
FIN 3305	Money and Banking
MATH 3310	Statistical Analysis for Business Applications II

or

ECO 4301	Business Fluctuation Forecasting
FIN 4301	Cases in Managerial Finance
FIN 4303	International Finance
FIN 4305	Investments
FIN 4309	Seminar in Finance

Lower-level Business electives: 3 hours

Upper-level Business electives: 3 hours

Upper-level Finance Electives: 6 hours

Total number of hours for BBA with major in Finance: 126

Major in General Business

Kurt Stanberry, JD, MBA

Room 1056-North, 713-221-8672

General Business Faculty: Spilger, Stanberry

A vital part of UH-Downtown's mission is to offer high-quality business education to prepare students for immediate entry into the local business community. Designed for students who seek a strong interdisciplinary business program, the General Business major combines a solid foundation of general education with understanding of the fundamental theories and procedures of basic business functions.

Through this major, students have the opportunity to tailor their course work to meet individual career goals. For example, a student with an entrepreneurial interest might choose courses in small business management, marketing and personnel. A student interested in working in the oil industry might choose professional land management courses. Students interested in focusing on international business might take the courses offered in international business, international marketing, international business law, international accounting and international economics.

General Education Core Requirements

CIS 1301	Introduction to Computer-Based Systems
ENG 1301	Composition I
ENG 1302	Composition II
HIST 1305	U.S. History to 1877
HIST 1306	U.S. History after 1877
MATH 1301	College Algebra
POLS 2303	U.S. Government I
POLS 2304	U.S. Government II

Social and Behavioral Sciences (one of the following: ANTH 2301, ANTH 2302, CJ 1301, ECO 1301, GEOG 1301, GEOG 1302, PSY 1303, SOC 1303)

Fine Arts (3 hours)

Literature (3 hours, sophomore level or above)

Natural Science (6 hours)

Speech (3 hours) COMM 3306 will satisfy requirement

Satisfactory completion of the Writing Proficiency Examination

Application Course Requirements

The writing skills requirement of the University General Education core requirements is satisfied by ENG 3302 and ADM 4301 which are listed as requirements in the business core below. The Nonverbal Analytical Skills requirement of the University General Education Core requirements is satisfied by MATH 1306 which is listed as a requirement in the business core below.

Enhancement Course Requirements

The general education core content requirements related to ethical and moral issues and the world community are addressed throughout the required business core courses. The College of Business faculty believes that these dimensions should not be studied in isolation; that to be most meaningful, they must be studied in direct relationship with the career path chosen by the student. Thus, within each area of the business core, relevant material related to these dimensions is presented.

Business Core Requirements

Lower Division

MATH 1305	Finite Math with Applications
MATH 1306	Fundamentals of Calculus with Applications
ACC 2301	Financial Accounting
ACC 2302	Managerial Accounting
BA 2301	Business Cornerstone
ECO 2301	Principles of Economics I
ECO 2302	Principles of Economics II

Upper Division

ENG 3302	Business and Technical Report Writing
MATH 3309	Statistical Analysis for Business Applications I
BA 3301	Legal Environment of Business
CIS 3302	Management Information Systems
FIN 3302	Business Finance
MGT 3301	Management of Organizations
MKT 3301	Principles of Marketing
MGT 3332	Quantitative Decision Making
ADM 4301	Business Communications
BA 4302	Business Strategy (Policy)

General Business Major requirements are

BA 3302 Commercial Law
Upper level elective: 3 hours outside the College of Business.

27 hours of business courses (beyond the core requirements) from at least three of the following areas:

Accounting (ACC)
Administrative Management (ADM)
Business Administration (BA)
Computer Information Systems (CIS)
Economics (ECO)
Finance (FIN)
Management (MGT)
Marketing (MKT)
Professional Land Management (PLM)

No more than 12 hours of the 27 hours can be taken in any one area. At least 21 of these 27 hours must be designated as junior or senior level courses that are not being counted toward a second business major. A student majoring in General Business can combine this major with any minor(s). The General Business major cannot be combined with a second business major to form a double major unless the student takes 30 additional advanced hours.

At least fifty percent (50%) of the upper division business credits must be taken from the University of Houston-Downtown.

Total number of hours required for BBA with major in General Business: 126

Major in International Business

Anisul Islam, PhD, Coordinator
Room 1029-North, 713-221-8914

Given the significant role of the United States in world affairs and the importance of globalization of business to American business enterprise, this major offers a combination of basic business knowledge with an interdisciplinary study of international practices and policies. The curriculum of this major is designed to prepare students for positions in government, business or international agencies in the fields of international trade, international finance, international marketing, international management, and international accounting.

General Education Core Requirements

CIS 1301 Introduction to Computer-Based Systems
ENG 1301 Composition I
ENG 1302 Composition II
HIST 1305 U.S. History to 1877
HIST 1306 U.S. History after 1877
MATH 1301 College Algebra
POLS 2303 U.S. Government I
POLS 2304 U.S. Government II

Social and Behavioral Sciences (one of the following: ANTH 2301, ANTH 2302, CJ 1301, ECO 1301, GEOG 1301, GEOG 1302, PSY 1303, SOC 1303)

Fine Arts (3 hours)
Literature (3 hours, sophomore level or above)
Natural Science (6 hours)
Speech (3 hours) COMM 3306 will satisfy requirement
Satisfactory completion of the Writing Proficiency Examination

Application Course Requirements

The writing skills requirement of the University General Education core requirements is satisfied by ENG 3302 and ADM 4301 which are listed as requirements in the business core below. The Nonverbal Analytical Skills requirement of the University General Education Core requirements is satisfied by MATH 1306 which is listed as a requirement in the business core below.

Enhancement Course Requirements

The general education core content requirements related to ethical and moral issues and the world community are addressed throughout the required business core courses. The College of Business faculty believes that these dimensions should not be studied in isolation; that to be most meaningful, they must be studied in direct relationship with the career path chosen by the student. Thus, within each area of the business core, relevant material related to these dimensions is presented.

Business Core Requirements

Lower Division

MATH 1305 Finite Math with Applications
MATH 1306 Fundamentals of Calculus with Applications
ACC 2301 Financial Accounting
ACC 2302 Managerial Accounting
ECO 2301 Principles of Economics I
ECO 2302 Principles of Economics II
BA 2301 Business Cornerstone

Upper Division

BA 3301 Legal Environment of Business
CIS 3302 Management Information Systems
ENG 3302 Business and Technical Report Writing
FIN 3302 Business Finance
MATH 3309 Statistical Analysis for Business Applications I
MGT 3301 Management of Organizations
MKT 3301 Principles of Marketing
MGT 3332 Quantitative Decision Making
ADM 4301 Business Communication/
BA 4302 Business Strategy

International Business Requirements

Required Courses: (18 hours from the following courses)

MKT 3304 International Marketing
ACC 3323 International Accounting
BA 3304 International Business Law
BA 3320 International Business
ECO 4303 International Economics
FIN 4303 International Finance
MGT 4301 International Management

Language Requirement: (6 to 8 hours)

Depending upon placement, either two semesters (8 hours) of lower division or 6 hours of more advanced language courses.

Business Electives: (6 hours from the following courses)

ECO 3303 Industrial Organization
MKT 4308 Exporting and Importing
ECO 4309 Economic Development
BA 4380 Field Experience

Free Electives: (3 hours)

Students are encouraged to take one of the following courses:

- COMM 2307 International Cultural Communication
- PHIL 3322 World Religions
- POLS 4303 International Politics

Foreign Language courses in addition to the above 8 hours.

Total number of hours required for BBA with major in International Business: 126

Major In Management

Margaret Shipley, PhD, Coordinator
Room 1060-North, 713-221-8571

Management Faculty: Aven, Bizzell, Coy, Efraty, Maranville, Mitchell, Monteils, Shipley

The management major introduces the student to the dynamics of the management of organizations. It exposes the student to the processes and activities required for effective functioning of organizations in a global environment. The management program offered at UHD provides flexibility in course selection.

Organizational and group behavior, human resource management, small business/entrepreneurship, international management, quality management, project management, diversity management, and quantitative methods are among the subjects offered in this program. Emphasis is placed on the team building and critical thinking skills necessary for effective managerial decision making.

Career opportunities in management exist in both production-oriented and service-oriented organizations in the public and private sectors. Graduates may be employed in management positions within any functional area of a company including human resources and operations planning and control. This program is recommended for students who are interested in the management of organizations as well as those interested in managing their own businesses.

General Education Core Requirements

- CIS 1301 Introduction to Computer-Based Systems
- ENG 1301 Composition I
- ENG 1302 Composition II
- HIST 1305 U.S. History to 1877
- HIST 1306 U.S. History after 1877
- MATH 1301 College Algebra
- POLS 2303 U.S. Government I
- POLS 2304 U.S. Government II

Social and Behavioral Sciences (one of the following: ANTH 2301, ANTH 2302, CJ 1301, ECO 1301, GEOG 1301, GEOG 1302, PSY 1303, SOC 1303)

Fine Arts (3 hours)

Literature (3 hours, sophomore level or above)

Natural Science (6 hours)

Speech (3 hours) COMM 3306 will satisfy requirement

Satisfactory completion of the Writing Proficiency Examination

Application Course Requirements

The writing skills requirement of the University General Education core requirements is satisfied by ENG 3302 and ADM 4301, which are listed as requirements in the business core below. The Nonverbal Analytical Skills requirement of the University General Education Core requirements is satisfied by MATH 1306, which is listed as a requirement in the business core below.

Enhancement Course Requirements

The general education core content requirements related to ethical and moral issues and the world community are addressed throughout the required business core courses. The College of Business faculty believes that these dimensions should not be studied in isolation; that to be most meaningful, they must be studied in direct relationship with the career path chosen by the student. Thus, within each area of the business core, relevant material related to these dimensions is presented.

Business Core Requirements

Lower Division

- MATH 1305 Finite Math with Applications
- MATH 1306 Fundamentals of Calculus with Applications
- ACC 2301 Financial Accounting
- ACC 2302 Managerial Accounting
- BA 2301 Business Cornerstone
- ECO 2301 Principles of Economics I
- ECO 2302 Principles of Economics II

Upper Division

- ENG 3302 Business and Technical Report Writing
- MATH 3309 Statistical Analysis for Business Applications I
- BA 3301 Legal Environment of Business
- CIS 3302 Management Information Systems
- FIN 3302 Business Finance
- MGT 3301 Management of Organizations
- MKT 3301 Principles of Marketing
- MGT 3332 Quantitative Decision Making
- ADM 4301 Business Communications
- BA 4302 Business Strategy (Policy)

Management major requirements

- MGT 4308 Applied Organizational Behavior
- MGT 4330 Project Management

18 Credit hours are to be selected from the following courses

Minimum of 12 credit hours (four courses) selected from:

- MGT 3302 Human Resource Management
- MGT 3304 Labor Management Relations
- MGT 3305 Planning and Budgeting
- MGT 3306 Compensation Management
- MGT 3307 Equal Opportunity Management
- MGT 3399 Directed Studies in Management
- MGT 4301 International Management
- MGT 4303 Small Business Management
- MGT 4314 Quality Management
- MGT 4390 Selected Topics in Management

Maximum of 6 credit hours (two courses) selected from:

- MGT 3303 Negotiating Skills and Techniques
- MGT 3308 Purchasing Management
- MGT 3309 Materials Management
- BA 3303 Environmental Issues in Business
- BA 3305 Entrepreneurship
- BA 3308 Business Ethics

Upper Level Business electives: 6 hours

Lower/Upper Level Open Electives: 3 hours

Total number of hours for BBA with Major in Management: 126

Major In Marketing

Gary Jackson, PhD, Coordinator
Room 1046-North, 713-221-8915

Marketing Faculty: Jackson, Johnson, Pointer, Strain

Marketing is universally needed in both domestic and international businesses. Careers in marketing offer a large variety of activities utilizing different skills and talents. Those who want to emphasize their creativity may enjoy the promotional aspects of marketing including personal selling, advertising and marketing strategy. Others whose abilities are more quantitative may prefer pricing, distribution and marketing research. The marketing program at UHD is designed to allow students the freedom to develop their individual skills and talents in marketing while providing the marketing fundamentals needed for a career in marketing.

Wherever students' interests lie, there are areas of emphasis in marketing to match their employment objectives. Career opportunities in marketing are not limited to the private sector. Students interested in working in governmental agencies and nonprofit organizations will find that marketing majors are sought by these employers as well.

General Education Core Requirements

CIS 1301	Introduction to Computer-Based Systems
ENG 1301	Composition I
ENG 1302	Composition II
HIST 1305	U.S. History to 1877
HIST 1306	U.S. History after 1877
MATH 1301	College Algebra
POLS 2303	U.S. Government I
POLS 2304	U.S. Government II

Social and Behavioral Sciences (one of the following: ANTH 2301, ANTH 2302, CJ 1301, ECO 1301, GEOG 1301, GEOG 1302, PSY 1303, SOC 1303)

Fine Arts (3 hours)

Literature (3 hours, sophomore level or above)

Natural Science (6 hours)

Speech (3 hours) COMM 3306 will satisfy requirement

Satisfactory completion of the Writing Proficiency Examination

Application Course Requirements

The writing skills requirement of the University General Education core requirements is satisfied by ENG 3302 and ADM 4301 which are listed as requirements in the business core below. The Nonverbal Analytical Skills requirement of the University General Education Core requirements is satisfied by MATH 1306 which is listed as a requirement in the business core below.

Enhancement Course Requirements

The general education core content requirements related to ethical and moral issues and the world community are addressed throughout the required business core courses. The College of Business faculty believes that these dimensions should not be studied in isolation; that to be most meaningful, they must be studied in direct relationship with the career path chosen by the student. Thus, within each area of the business core, relevant material related to these dimensions is presented.

Business Core Requirements

Lower Division

MATH 1305	Finite Math with Applications
MATH 1306	Fundamentals of Calculus with Applications
ACC 2301	Financial Accounting
ACC 2302	Managerial Accounting
BA 2301	Business Cornerstone
ECO 2301	Principles of Economics I
ECO 2302	Principles of Economics II

Upper Division

ENG 3302	Business and Technical Report Writing
MATH 3309	Statistical Analysis for Business Applications I
BA 3301	Legal Environment of Business
CIS 3302	Management Information Systems
FIN 3302	Business Finance
MGT 3301	Management of Organizations
MKT 3301	Principles of Marketing
MGT 3332	Quantitative Decision Making
ADM 4301	Business Communications
BA 4302	Business Strategy (Policy)

Marketing Major Requirements:

MKT 4305	Consumer Behavior
MKT 4306	Marketing Research
MKT 4309	Marketing Management & Strategy

12 credit hours are to be selected from the following courses:

MKT 3302	Personal Selling
MKT 3303	Business Marketing
MKT 3304	International Marketing
MKT 3305	Promotional Strategy
MKT 3399	Directed Study in Marketing
MKT 4307	Traffic & Transportation
MKT 4308	Exporting & Importing
MKT 4390	Selected Topics in Marketing

Upper Level Business Electives: 6 hours

Upper Level Electives outside the COB: 6 hours

Total number of hours for BBA with Major in Marketing: 126

Major in Purchasing and Supply Management

Ralph Kauffman, PhD, Coordinator
Room 1017-North, 713-221-8962

Purchasing Faculty: Kauffman, Ruthstrom, Stading

Every year more than \$1,500 billion of materials are purchased by manufacturing firms alone. Federal, state and local governments purchase another \$1,000 billion of goods and services per year. In Houston and across the nation, supply management, the acquisition and management of supplies and services, plays an important role in the economy. In the private sector, every dollar saved by purchasing and supply management professionals adds another dollar to profit. In the public sector, every dollar saved by a government purchasing office represent either a dollar available for another project or for tax reductions.

Career opportunities in the Purchasing and Supply Management area are available for students with a sound understanding of purchasing and supply management strategies. Hospitals, city and county health departments, public utilities, and such diverse industries as engineering design and construction manufactur-

ing, parts distribution, chemicals, oil, foods, trucking, pipelines, and retail organizations currently employ graduates of UHD's program. A major in Purchasing and Supply Management combined with a minor in engineering technology, marketing, or management provides a broad background, which can enhance students' career opportunities.

The University of Houston-Downtown offers the only AACSB International accredited Purchasing and Supply Management major in Texas. The program is frequently updated in consultation with the National Association of Purchasing Management-Houston and the local chapter of the National Institute of Governmental Purchasing.

General Education Core Requirements

CIS 1301	Introduction to Computer-Based Systems
ENG 1301	Composition I
ENG 1302	Composition II
HIST 1305	U.S. History to 1877
HIST 1306	U.S. History after 1877
MATH 1301	College Algebra
POLS 2303	U.S. Government I
POLS 2304	U.S. Government II

Social and Behavioral Sciences (one of the following: ANTH 2301, ANTH 2302, CJ 1301, ECO 1301, GEOG 1301, GEOG 1302, PSY 1303, SOC 1303)

Fine Arts (3 hours)

Literature (3 hours, sophomore level or above)

Natural Science (6 hours)

Speech (3 hours) COMM 3306 will satisfy requirement

Satisfactory completion of the Writing Proficiency Examination

Application Course Requirements

The writing skills requirement of the University General Education core requirements is satisfied by ENG 3302 and ADM 4301 which are listed as requirements in the business core below. The Nonverbal Analytical Skills requirement of the University General Education Core requirements is satisfied by MATH 1306 which is listed as a requirement in the business core below.

Enhancement Course Requirements

The general education core content requirements related to ethical and moral issues and the world community are addressed throughout the required business core courses. The College of Business faculty believes that these dimensions should not be studied in isolation; that to be most meaningful, they must be studied in direct relationship with the career path chosen by the student. Thus, within each area of the business core, relevant material related to these dimensions is presented.

Business Core Requirements

Lower Division

MATH 1305	Finite Math with Applications
MATH 1306	Fundamentals of Calculus with Applications
ACC 2301	Financial Accounting
ACC 2302	Managerial Accounting
BA 2301	Business Cornerstone
ECO 2301	Principles of Economics I
ECO 2302	Principles of Economics II

Upper Division

ENG 3302	Business and Technical Report Writing
MATH 3309	Statistical Analysis for Business Applications I
BA 3301	Legal Environment of Business
CIS 3302	Management Information Systems
FIN 3302	Business Finance
MGT 3301	Management of Organizations
MKT 3301	Principles of Marketing
MGT 3332	Quantitative Decision Making
ADM 4301	Business Communications
BA 4302	Business Strategy (Policy)

Purchasing and Supply Management requirements

MGT 3303	Negotiating Skills and Techniques
MGT 3308	Purchasing Management
MGT 3309	Materials Management
MGT 4307	Supply Chain Logistics Management
MGT 4311	Federal Government Procurement
MGT 4314	Quality Management
MGT 4315	Supply Chain Management
MGT 4350	Advanced Purchasing and Supply Management Seminar

Upper-level Business electives: 6 hours

Upper Level Elective Outside the College of Business: 3 hours

Note: Recommended electives for Purchasing and Supply Management Majors include BA 3302, ECO 3303, ECO 4301, MGT 4312, MGT 4313, MGT 4330, MKT 3303, MKT 3304, and MKT 4308.

Total number of hours for BBA with major in Purchasing and Supply Management: 126

Minor Programs

General Academic Requirements for Minor:

- Student must have a 2.0 cumulative GPA or better at UHD to be approved to pursue a minor.
- Student must have a 2.0 GPA or better in courses in the minor for minor to be certified at graduation.
- No field experience course may be applied to a minor program (ACC 4380, ADM 4380, BA 4380, CIS 4380, FIN 4380, MGT 4380, MKT 4380, or PLM 4380).
- The minor field elected must be different from the major.
- A student must complete all course work required for the minor in addition to all course work required for the degree prior to graduation.

Students should note that in some instances courses listed as requirements or options for the minor program may have prerequisites which are not listed as part of the program. Prerequisites will not be waived.

The procedures for declaring a minor are available from the Office of Business Student Records, Room 1037-North.

Minor in Accounting (21 hours total)

Required Courses (15 hours)

ACC 2301	Financial Accounting
ACC 2302	Managerial Accounting
ACC 3300	Analysis of Financial Reporting
ACC 3301	Intermediate Accounting I
ACC 4301	Individual Income Taxation

Elective Courses (6 hours)

Choose any two of the following:

- ACC 3302 Intermediate Accounting
- ACC 3303 Cost Accounting
- ACC 3304 Accounting Information Systems
- ACC 3307 Oil and Gas Accounting
- ACC 4302 Corporate Taxation
- ACC 4303 Advanced Accounting
- ACC 4304 Auditing
- ACC 4323 International Accounting

Minor in Administrative Management (18 hours total)

Required courses (12 hours)

- ADM 2303 Information Processing I
- ADM 3301 Records Management
- ADM 3302 Supervision of Personnel
- ADM 3309 Management in the Virtual Workplace

Elective Courses (6 hours)

Choose any two of the following:

- ADM 3303/
MGT 3307 Equal Opportunity Management
- ADM/
BA 3308 Business Ethics
- ADM 4302 Supervisory Problems
- ADM 4305 Information Processing Management
- MGT 3301 Management of Organizations
- MGT 3302 Human Resource Management Personnel Administration
- MGT 3306 Compensation Management Wage and Salary Administration

Minor in Computer Information Systems (21 hours total)

Required Courses (18 hours)

- CIS 2301 Computer Algorithms and Problem Solving
- CIS 2303 Introduction to Business Application Programming
OR
- CIS 2304 Intermediate Business Application Programming
- CIS 3301 Systems Analysis and Design
- CIS 3303 Computer Hardware-System Software and Architecture
- CIS 3305 Communications and Distributed Processing Systems
- CIS 3306 Data Files and Databases

Elective Courses (3 hours)

Choose any 4000 level CIS course

Minor in Economics (18 hours total)

Required courses (6 hours)

- ECO 2301 Principles of Economics I
- ECO 2302 Principles of Economics II

Elective Courses (12 hours)

Choose any four upper level (3000 or 4000 level) economics courses. One of the following may be substituted for one of the economics courses:

- FIN 3305 Money and Banking
- ACC 3300 Analysis of Financial Reporting

Minor in Finance (18 hours total)

Required Courses (12 hours)

- FIN 3305 Money and Banking
- FIN 4305 Investments
- FIN 4309 Seminar in Finance
- FIN 4303 International Finance

Elective Courses (6 hours)

Choose two additional upper level (3000 or 4000 level) FIN courses

Minor in General Business (18 hours total)

Open only to Non-Business Majors. At least 12 of the 18 hours must be upper division (3000 or 4000 level).

Required Courses (6 hours)

- MGT 3301 Management of Organizations
- MKT 3301 Principles of Marketing

Elective Courses (12 hours)

Select four courses from those with the following designations:

- ADM Administrative Management
- BA Business Administration
- MGT Management
- MKT Marketing
- PLM Professional Land Management

No more than six hours in any one field (Administrative Management, Business Administration, Management, Marketing, Professional Land Management,) can be counted toward a minor in General Business.

Minor in International Business (18 hours total)

Required course (3 hours)

- BA 3320 International Business

Elective courses (15 hours)

Choose five courses from the following:

- ACC 4323 International Accounting
- BA 3304 International Business Law
- ECO 4303 International Economics
- ECO 4309 Economic Development
- FIN 4303 International Finance
- MGT 4301 International Management
- MKT 3304 International Marketing
- MKT 4308 Exporting and Importing

One elective course may be chosen from the following:

- COMM 2307 InterCultural Communication
- POLS 4303 International Politics
- PHIL 3322 World Religions

Minor in Management (18 hours total)

Required Courses (6 hours)

- MGT 3301 Management of Organizations
- MGT 4308 Applied Organizational Behavior

Elective Courses (12 hours)

Minimum of 6 credit hours (2 courses) selected from:

- MGT 3302 Human Resource Management
- MGT 3304 Labor Management Relations
- MGT 3305 Planning and Budgeting
- MGT 3306 Compensation Management
- MGT 3307 Equal Opportunity Management
- MGT 3332 Quantitative Decision Making
- MGT 3399 Directed Studies

COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

Michael R. Dressman, PhD, Dean

B. Christiana Birchak, PhD, Associate Dean for Student Affairs and Advising

Anjoo Sikka, PhD, Associate Dean for Graduate and Off-campus Programs
Room 1015-South, 713-221-8009

The College of Humanities and Social Sciences offers courses and degrees that explore human culture and social interaction and that develop skills in analysis and communication. The fundamental courses in humanities and social sciences constitute basic requirements in the common core curriculum for a university education.

Programs of Study

Degree Programs

The College of Humanities and Social Sciences offers the following degree programs:

Bachelor of Arts with majors in:

- Communication Studies
- English
- Interdisciplinary Studies
(Elementary and Middle School Education)

- History
- Humanities
- Social Sciences

Bachelor of Science with majors in:

- Criminal Justice
- Interdisciplinary Studies
- Political Science
- Professional Writing
- Psychology
- Social Sciences
- Sociology

Post-baccalaureate Teacher Certification

Master of Arts in Teaching

Master of Science with major in Criminal Justice

Teacher Education Program

The University of Houston-Downtown's teacher education program offers certification in elementary, secondary, and bilingual education. Students wishing to obtain EC-4 certification will need to take courses in a variety of academic areas. Students seeking middle-school certification have the opportunity to select a generalist or specialization track. Secondary certification majors may choose from mathematics, English, Social Studies, Science or generic (additional areas by advisement for post-baccalaureate students). Endorsements in selected areas, including bilingual education, are also available. For formal admission to the teacher education program, students should have:

- completed at least 40 hours toward their degree, or post-baccalaureate standing;
 - obtained passing scores on all three sections of the TASP;
- and*
- an overall 2.5 grade point average (for undergraduate majors and for post-baccalaureate students).

MGT 4301	International Management
MGT 4303	Small Business Management
MGT 4314	Quality Management
MGT 4390	Selected Topics in Management
MGT 4330	Project Management

Maximum of 6 credit hours (two courses) selected from:

MGT 3303	Negotiating Skills and Techniques
MGT 3308	Purchasing Management
MGT 3309	Materials Management
BA 3305	Entrepreneurship
BA 3308	Business Ethics

Minor in Marketing (18 hours total)

Required Courses (12 hours)

Twelve hours of upper-level (3000 or 4000) courses designated MKT.

Elective Courses (6 hours)

Choose two courses from the following:

BA 3308	Business Ethics
BA 4303	Small Business Management
ECO 4303	International Economics
MGT 3303	Negotiating Skills and Techniques
FIN 3311	Real Estate Valuation

Minor in Professional Land Management (18 hours total)

Required Courses (9 hours)

PLM 2301	Introduction to the Oil Business
PLM 4301	Legal Aspects of Oil and Gas Law
PLM 4303	Land Management Practices

Elective Courses (9 hours)

Choose three courses from the following:

ACC 3307	Oil and Gas Accounting
BA 3303	Environmental Issues in Business
BA 3309	Real Estate Law
FIN 3311	Real Estate Valuation
MGT 3303	Negotiating Skills and Techniques

Minor in Purchasing and Supply Management (18 hours total)

Required Courses (12 hours)

MGT 3301	Management of Organizations
MGT 3303	Negotiating Skills and Techniques
MGT 3308	Purchasing Management
MGT 3309	Materials Management

Elective Courses (6 hours)

Choose two courses from the following:

MGT 4307	Supply Chain Logistics Management
MGT 4311	Federal Government Procurement
MGT 4314	Quality Management

Teacher education students are not permitted to self-advise or telephone register for BED, EED, SED, or PED courses. Students interested in the teacher education program should contact the Department of Urban Education at 713-221-8906 or visit Room 601-South.

General Education Requirements in the College of Humanities and Social Sciences

All students seeking a bachelor's degree in the College of Humanities and Social Sciences must complete the general education requirements, including the common core courses, application courses, enhancement courses and the Writing Proficiency Examination required of all UH-Downtown graduates, as well as meet the specific requirements of the particular degree sought. Fulfillment of general education requirements may vary depending on the degree.

Being Accepted as a Degree Major

All undergraduate students at UH-Downtown are assigned for academic advising to University College until they are accepted into one of the degree programs. Before applying for acceptance to programs in the College of Humanities and Social Sciences, a student must:

- Have fulfilled all TASP obligations;
- Have completed all required developmental courses;
- Complete a minimum of 30 hours toward the general education requirements;
- Be in good academic standing; and
- Be released by University College.

After these requirements are met, University College will refer the student to the College of Humanities and Social Sciences.

Requirements for Majors

All undergraduate degree programs in the College of Humanities and Social Sciences require a minimum of 30 semester credit hours in residence and a minimum of 18 upper-level semester credit hours earned at this university. The College reserves the right to limit the number of directed study, internship, service learning, experience learning, and credit-by-examination credit hours that can be applied to degree requirements, especially major requirements.

Minors

The College of Humanities and Social Sciences offers undergraduate minors in the following areas:

- Art
- Criminal Justice
- English
- Ethnic Studies
- Gender Studies
- History
- Philosophy
- Political Science
- Professional Writing
- Psychology
- Quantitative Methods in Research
- Sociology
- Spanish
- Communication Studies
- Theatre

Students seeking minors in these areas must meet the following requirements:

- The grade point average for all courses taken at UH-Downtown and applied to the minor must be at least 2.0.
- Transfer courses applied to the minor may be restricted by the individual program.
- Courses applied toward a minor must include a minimum of six hours of upper-level course work taken at UH-Downtown.
- Upper-level courses applied toward the major may not also be counted toward the fulfillment of minor requirements.

Requirements for each minor are listed with the curricula of the departments offering the minor. The requirements for the minors in Ethnic Studies and Gender Studies are available at the office of the College of Humanities and Social Sciences.

Bachelor of Science

Major in Interdisciplinary Studies

Room 1015-South, 713-221-8009

The Bachelor of Science with a major in Interdisciplinary Studies (BSIS) permits students to select, from among UHD's offerings in the arts and sciences, those courses that most interest them, and to present 36 semester credit hours of those courses as their major. The degree shares the basic core curriculum with other degrees and includes a distribution of courses to insure a good academic foundation. The BSIS also includes a large number of elective courses and, for this reason, it is often the best degree completion alternative for transfer students or students who have discovered that they are no longer interested in their previous major.

Students who complete the BSIS degree can, by careful selection of courses, prepare themselves for graduate or professional programs or for post-baccalaureate teacher certification. Graduates are also qualified to undertake a variety of employment or community service opportunities and challenges.

In compliance with the accrediting principles of the American Assembly of Collegiate Schools of Business, the business content of non-business programs is limited to 25 percent of the credit hours applied toward graduation.

When released by University College, students interested in the Bachelor of Science degree with a major in Interdisciplinary Studies may enroll in the program by contacting the coordinator of academic advising in the College of Humanities and Social Sciences.

Degree Requirements

The degree requires completion of 123 hours, at least 36 of which must be upper-level courses (numbered 3000-4999) within the arts and sciences. For degree completion, at least 25 percent of the semester credit hours must be earned through instruction offered by UH-Downtown. The last 30 of the total hours and 18 of the upper-level hours in the arts and sciences must be successfully completed in residence at UH-Downtown. The minimum grade point average of 2.0 required for graduation is computed for all course work that could apply toward the degree at UHD.

Common Core Requirements (42 hours)

See listing under Common Core Requirements on page 24 of this Catalog.

Lower-Division Cluster Requirements (18 hours)

Six hours of arts and humanities, excluding ENG 1300, RDG 1300, ENG 1105, COMM 1301; three additional hours of literature; six hours of social sciences; three hours of mathematics, computer science or natural sciences, excluding MATH 0300 and MATH 1300.

Upper-Division Requirements (36 hours)

At least 36 hours of upper-level work in the arts and sciences offered by the following departments at UH-Downtown: Arts and Humanities, English, Social Sciences, Natural Sciences, and Computer and Mathematical Sciences. Selected courses from Urban Education or the College of Business may apply with the coordinator's approval. Six hours of credit in writing-intensive courses are required as part of this program. No more than 18 upper-level hours in a single discipline may be counted toward the major, and no more than 27 total hours in a single discipline (excluding courses used to satisfy common core requirements) may be used to satisfy degree requirements.

Electives (27 hours)

From any department at any level, with the following restrictions: Developmental courses (ENG 1300, MATH 0300, MATH 1300 and RDG 1300) may not apply to graduation requirements.

Department of Arts and Humanities

Susan J. Baker, Ph.D., Chair
Room 1047-South, 713-221-8104

FACULTY

Professors:	Lyttle, Newsum, Roubicek
Associate Professors:	S. Baker, DeWitt, Hagen, Kendall, Mosier, Shelley, Wanguri
Assistant Professors:	Krupp, Mrak, Padilla
Lecturers:	Cervenka, R. Wilson
Academic Areas:	Art, Drama, French, Humanities, Music, Spanish, Communication Studies

Programs of Study

Bachelor of Arts with major in Communication Studies
Bachelor of Arts with major in Humanities
Bachelor of Science with major in Interdisciplinary Studies

Mission and Objectives

The Department of Arts and Humanities aims at developing a student's creative and communicative abilities. The department's course offerings support all degree programs at UH-Downtown. Students who wish to pursue a general liberal course of studies may enroll in the program leading to either the Bachelor of Science with a major in Interdisciplinary Studies (see information concerning B.S.I.S. under College of Humanities and Social Sciences) or the Bachelor of Arts with a major in Humanities. Students seeking to work in the communications profession pursue the Bachelor of Arts with a major in Communication Studies.

Bachelor of Arts

Major in Communication Studies

Deloris McGee Wanguri, PhD, Coordinator
Room 1047-South, 713-221-8104

Students pursuing the Bachelors of Arts in Communication Studies gain a thorough grounding in the theories, skills, and aesthetics of communication. Students learn how to be effective communicators in a variety of contexts, and are equipped to become inquisitive, probing and reflective professionals and citizens. The degree offers students a broad foundation in theory and practice, with technological application in support of its courses. Besides the core curriculum and the major requirements, the degree includes course work in adjacent academic disciplines, such as writing and the social sciences.

Degree Requirements

The Communication Studies major requires a minimum of 122 hours. For degree completion, at least 25 percent of the semester credit hours must be earned through instruction offered by UH-Downtown. The last 30 of the total hours and 18 of the upper-level hours toward the degree must be successfully completed in residence at UH-Downtown. An overall minimum grade point average of 2.0 at UH-Downtown is required for graduation, and a minimum average of 2.0 must be maintained in the upper-level hours in the major.

Common Core Requirements (42 hours)

See listing under Common Core Requirements on page 24 of this Catalog.

Preparatory Requirements (26 hours)

Foreign language in one language (8 hours)

Fine Arts (3 hours)

Communication/lower-level (3 hours-COMM 1304 required if not taken as part of core)

Communication/lower or upper-level (3 hours)

Philosophy (3 hours)

Social Sciences (6 hours)

Upper-Level Requirements (24 hours)

Requirement:
COMM 3320 Communication Theory (3 hours)

Additional courses in Communication (21 hours)

Cognate Areas (15 hours)

Requirement:
ENG 3302 Business and Technical Report Writing (3 hours)

Additional courses may be selected from among the following:

COMM 3312 Writing for Presentation
ENG 3316 History of Rhetoric
HUM 3310 Cultural Criticism
PSY 3301 Industrial/Organizational Psychology
PSY 3310 Psychology of Women
PSY 4304 Learning and Behavior
SOC 3303 Sociology of the Family
SOC 4307 Public Opinion and Mass Communication

Other courses may be substituted upon petition to the degree coordinator by a student.

Electives (15 hours)

From any department at any level, with the following restrictions: Developmental courses (ENG 1300, MATH 0300, MATH 1300, and RDG 1300) may not apply to graduation requirements. No more than 25 percent of the hours presented for graduation may be credits in business. Electives are an important part of the degree program and should be selected in consultation with an academic advisor.

Bachelor of Arts

Major in Humanities

Susan J. Baker, PhD, Coordinator
Room 1047-South, 713-221-8104

The study of the humanities is an investigation of human institutions and artistic achievement, the values embodied in those institutions and works, and the range of aesthetic and philosophical responses to the human condition. The Bachelor of Arts in Humanities program gives a student experience with literature, philosophic writings, the history of human culture, and the performing and visual arts, as well as a framework for critical consideration of cultural values and their expression in institutions, literature and the fine arts. Because this is an interdisciplinary degree, no more than 18 hours of upper-level work in a single discipline may be applied to the major, and no more than 27 total hours in a single discipline (excluding course work required to fulfill Common Core Requirements) may be used to satisfy degree requirements.

Degree Requirements

The Bachelor of Arts in Humanities requires a minimum of 125 hours. For degree completion, at least 25 percent of the semester credit hours must be earned through instruction offered by UH-Downtown. The last 30 of the total hours and 18 of the upper-level hours applied to the degree must be successfully completed in residence at UH-Downtown. An overall minimum grade point average of 2.0 at UH-Downtown is required for graduation, and a minimum average of 2.0 must be maintained in the 36 upper-level hours in the major. In addition to the requirements listed below, every student's program must include a nonverbal analytical reasoning course, either as an elective or in fulfillment of a requirement.

Common Core Requirements (42 hours)

See listing under Common Core Requirements on page 24 of this Catalog.

Preparatory Requirements (32 hours)

Philosophy: 6 hours

Fine arts: 6 hours (at least 3 hours in history or appreciation)

Written communication: 3 hours

Speech communication: 3 hours

Language and culture: 14 hours. At least 11 hours of a single foreign language through 2301 and 3 hours of either 2302 or

a course focusing on a specific culture, such as:

HIST 2309 Ethnic Minorities in American History

COMM 2307 Intercultural Communication

ENG 3322 Mexican-American Literature

HUM 3304 American Ethnic Heritage

HUM 3320 Foreign Literature in Translation

HUM 3321 Hispanic Culture and Civilization

For students placing out of any foreign language courses, other courses in English, humanities or social sciences may be substituted.

Upper-Level Requirements (36 hours)

HUM 3310: Cultural Criticism (3 hours)

HUM 4350: Senior Seminar (3 hours)

30 hours upper-level courses from the following disciplines:

Art

Communication

Drama

English

French

History

Humanities

Music

Philosophy

Spanish

Social Sciences: Political Science:

POLS 4304, American Political Thought and

POLS 4306, Women and Politics only

Psychology: PSY 4301: History of Psychology only

Electives (15 hours)

From any department at any level, with the following restrictions: Developmental courses (ENG 1300, MATH 0300, MATH 1300 and RDG 1300) may not apply to graduation requirements. No more than 25 percent of the hours presented for graduation may be credits in business. Electives are an important part of the degree program and should be selected in consultation with an academic advisor.

Minor in Art

Minimum requirements:

A grade point average of 2.0

A grade of at least C in all art courses

A total of 15 hours in art, 3 hours of field study, and an approved portfolio.

Minor in Arts Administration

(pending approval)

A grade point average of 2.0

A grade of at least C in all art and business courses

A total of 18 hours including ACC 2301, MGT 3301, MKT 3301,

Arts Administration, HUM 4380 and 3 hours fine arts elective beyond the core

Minor in Spanish

Minimum requirements:

A grade point average of 2.0

A grade of at least C in all Spanish courses

A total of 9 upper-division hours in Spanish at UH

Minor in Communication Studies

Minimum requirements:

A grade point average of 2.0

A grade of at least C in all Communication courses

A total of 18 hours in Communication (including COMM 1304 and

at least 9 upper-division hours in Communication at UHD

Minor in Drama

Minimum requirements:

A grade point average of 2.0

A grade of at least C in all drama courses

A total of 18 hours in drama (including at least 9 upper-division hours in drama at UHD)

Department of Criminal Justice

Beth Pelz, PhD, Chair

Room 625-South, 713-221-8943

FACULTY

Professor: McShane

Associate Professors: Belbot, Pelz

Assistant Professors: Engram, Glazier, Kellar, Long, Walsh, Wang

Instructor: Jakovich

Lecturer: Hill

Programs of Study

Bachelor of Science in Criminal Justice

Master of Science in Criminal Justice

Mission and Objectives

The mission of the Department of Criminal Justice is to develop and sustain a Criminal Justice program that reflects a cooperative relationship between the University of Houston-Downtown and the community. The department is committed to providing quality academic preparation that is designed to extend the knowledge and intellectual maturity of its students. In addition, we strive to influence the quality and nature of research in the field and to serve the community by influencing the development of programming and public policy in the area of criminal justice.

The educational philosophy of the department emphasizes an integration of intellectual growth and skill development in the preparation of our majors. The Criminal Justice program is designed to combine the applied aspects of the field with the theoretical components necessary for the development of sound, testable programming and public policy. This includes demonstrated competency in criminological, methodological and administrative theory as well as analytical and technical skills. Students are expected to analyze, question, reconsider and synthesize old and new knowledge and skills.

We believe our responsibility to our students extends beyond course work to include providing research, internship, mentoring and networking opportunities that will enable them to better succeed in their pursuit of careers in the field of Criminal Justice. Sustained interaction with the professional community and representative of the community at large assists us in achieving this goal.

Honor Societies

Alpha Phi Sigma–National Criminal Justice Honorary

Social Association

Criminal Justice Student Association

Bachelor of Science

Major in Criminal Justice

Robert Walsh, MS, Coordinator

Room 625-South, 713-221- 8943

Course work leading to this bachelor's degree provides the student with strong communication and analytical skills. This is accomplished (1) through a comprehensive and extensive set of general education requirements; (2) through a critical and in-depth interdisciplinary analysis of the causes of crime, the definition and measurement of crime and society's formal and informal efforts at preventing and controlling crime; and (3) by treatment of the field of criminal justice as an applied science where the student is taught to integrate theory construction, empirical validation and practical application.

Degree Requirements

The criminal justice major requires a minimum of 123 hours.

At least 25 percent of the semester credit hours must be earned through instruction offered by UH-Downtown. Twenty-four hours of criminal justice must be at the upper level, and 24 hours must be completed as course work at UH-Downtown. The last 30 of the total hours and 18 of the upper-level hours toward the degree must be successfully completed in residence at UH-Downtown. The degree requires a minimum of 36 upper-level hours. An overall minimum grade point average of 2.0 at UH-Downtown is required for graduation, and a minimum average of 2.0 must be maintained in the upper-level hours in the major.

Common Core Requirements (42 hours)

See listing under Common Core Requirements on page 24 of this Catalog.

General Education Requirements (9-12 hours)

Specific General Education Application and Enhancement Requirements for the Criminal Justice degree are:

Writing Skills (3 hours)

ENG 3302 Business and Technical Report Writing

or

ENG 3308 Legal Writing

Nonverbal Analytical Skills (3 hours)

CJ 3320 Statistics in Criminal Justice

or

SOS 3312 Statistics in the Social Sciences

Ethics and Morality (3 hours)

CJ 3311 Ethics of Social Control

or

PHIL 3301 Moral Issues, Personal and Professional

World Community (3 hours)

One course that addresses topics beyond American society. Consult a degree advisor for specific courses which complement this degree. Courses commonly used to fulfill this requirement in the College of Humanities and Social Sciences include courses in geography, foreign languages and literature, and history, political science and humanities courses that focus on other cultures. This requirement may be fulfilled through elective hours or in some other course applied within the degree including CJ 4313.

Criminal Justice Core (18 hours)

CJ 1301	Crime, Law and Society
CJ 2301	The Police System
CJ 2302	The Criminal Court System
CJ 2303	The Correctional System
CJ 3300	Research Methods in Criminal Justice
CJ 3301	Criminology

Criminal Justice Electives (27 hours)

Chosen from among criminal justice courses not applied to the criminal justice core. At least 21 hours must be at the upper level.

Supplemental Concentration (12 hours) or Minor (15-18 hours)

Students must select 12 hours of non-criminal justice course work of which nine hours must be 3000-4000 level courses that will supplement their chosen area of specialization within criminal justice. The courses must be approved by a faculty advisor.

To declare a minor, students should contact an advisor in the College of Humanities and Social Sciences and complete the appropriate forms.

Electives (9-15 hours)

From any department at any level, with the following restrictions: Developmental courses (ENG 1300, MATH 0300, MATH 1300 and RDG 1300), or their equivalent, may not apply to graduation requirements. No more than 25 percent of the hours presented for graduation may be credits in business. Electives are an important part of the degree program and should be selected in consultation with an academic advisor. (If the world community requirement is fulfilled by any course that meets another degree requirement, the total of elective hours is 9-15.)

Minor in Criminal Justice (18 hours minimum)

CJ 1301	Crime, Law and Society
CJ 2301	The Police System
CJ 2302	The Criminal Court System
CJ 2303	The Correctional System
CJ 3300	Research Methods in Criminal Justice
CJ 3301	Criminology

and

3 hours of upper-level criminal justice courses

Academy Credit

Students who complete the UHD Texas Commission on Law Enforcement Officer Standards and Education (TCLEOSE) Basic Peace Officer's Academy and pass the licensing exam can apply for advanced placement for CJ 2301 (Police Systems) and CJ 2302 (Criminal Courts) by paying an administrative fee of \$15.

Students must be enrolled at UHD in order to receive credit and may not receive credit for classes in which they are currently enrolled or for which they have already received credit. No other criminal justice classes may be substituted. No grade is awarded for credit obtained in this matter.

No other academy credit will be accepted.

Master of Science

Major in Criminal Justice

(See Academic Programs—Graduate, pages 75 to 76)

Training Division

Rex White, Director

Room 621-South, 713-221-8690

The University of Houston-Downtown has one of the largest criminal justice training centers in Texas. The mission of the Training Division is to provide quality adult education to people desiring to enter public and private sector criminal justice professions and continuing education to criminal justice practitioners. In addition, students, faculty and staff of the division donate thousands of hours annually to activities leading to the improvement of the criminal justice professions and the community at large. The division has conducted more than 100 police academy classes, trained more than 15,000 students for the criminal justice professions, and won regional and national awards for excellence. Its location near the Harris County courthouse and criminal justice complex makes it an ideal training site.

Law Enforcement Training Program

Entry-level training for prospective police officers is provided by the division's Police Academy. The academy is certified by the Texas Commission on Law Enforcement Officer Standards and Education (TCLEOSE) and is approved for veterans' benefits through the Texas Education Agency. Approximately 40-50 specialized and advanced courses are offered annually for police officers and other public sector practitioners. Basic and advanced management training courses ranging from one to 14 weeks in length are provided through the Police Management Institute.

Texas Department of Criminal Justice—Institutional Division Officer Training

The Pre-Service Academy for the Texas Department of Criminal Justice Institutional Division is a minimum 160-hour certification program for training entry-level personnel as Correctional Officers for the TDCJ-ID. Once the academy is completed, the graduates are offered paid positions within the Texas prison system throughout Texas.

Specialized Certification Courses and Seminars

Specialized training and certification opportunities are provided through unique seminars and courses. In cooperation with the International Foundation for Protection Officers, the division co-sponsors the Certified Protection Officer Program. In cooperation with the Houston Police Department and the Houston Chapter of the American Society for Industrial Security, the division co-hosts an annual Joint Professional Development Conference. Certification courses are available in such diverse areas as arson investigation, investigative hypnosis, emergency medical care and technician training, and management.

Department of English

William Gilbert, PhD, Chair
Room 1045-South, 713-221-8013

FACULTY

Professors:	Dressman, Harned, L. Thomas
Associate Professors:	Ahern, Bartholomew, Birchak, Cunningham, Farris, Gilbert, Jarrett, Jennings, D. Jones, Pavletich, Rizzo, Sullivan, T. Thomas
Assistant Professors:	Bernstein, Cheng-Levine, Chiaviello, Creighton, Dahlberg, Goleman, Kannenberg, Kinloch, Moosally, M. Johnson, S. Turner
Instructors:	Nelson, Read, Schmertz
Lecturers:	Brekke, Canetti-Rios, Coblentz Corrigan, Fadely, Hanson, Kanter, Kuzmick, Rubin-Trimble, C. Smith
Emeriti:	Franks, Levy
Academic Areas:	American studies, communication, English, humanities, reading

Programs of Study

Bachelor of Arts with a major in English
Bachelor of Arts with a major in Humanities
Bachelor of Science with a major in Professional Writing
Bachelor of Science with a major in Interdisciplinary Studies

The Department of English offers a wide variety of courses designed to improve students' communication skills and enhance their appreciation of the literature, thought, and culture of the English-speaking world. To accomplish these goals, the department offers focused degrees and wide-ranging service courses.

Degrees

The Bachelor of Science with a major in Professional Writing combines the strengths of a solid liberal arts education with practical training and technical expertise. All Professional Writing majors share a core of required upper-level courses and, beyond that core, choose from clusters of courses, including internships. The combination of flexibility and focus in the degree enables students to prepare to enter such fields as corporate communications, medical writing, or computer documentation, or to continue their education in graduate or professional schools.

The Bachelor of Arts with a major in English gives students a grounding in the language and literature of English, making them aware of how cultural forces shape them and critical approaches illuminate them. Like the B.S. in Professional Writing, the B.A. in English offers students a range of educational and career options on graduation, including entrance to graduate and professional schools in preparation for careers in academia and such fields as public policy, social work, and law.

Service Courses

The English Department's courses in writing, language, and literature support all degrees offered at the University of Houston-Downtown. In addition, courses taught by department faculty

form a major component of the programs of the Bachelor of Arts in Humanities and the Bachelor of Science with a major in Interdisciplinary Studies. In all the courses it offers, the department seeks to promote cultural and technological literacy and to improve students' critical thinking skills through analysis, interpretation, and evaluation.

Bachelor of Science

Major in Professional Writing

Robert L. Jarrett, PhD, Coordinator
Room 1045-South, 713-221-8013

Degree Requirements

The professional writing major requires a minimum of 120 hours. For degree completion, at least 25 percent of the semester credit hours must be earned through instruction offered by UH-Downtown. The last 30 of the total hours and 18 of the upper-level hours toward the degree must be successfully completed in residence at UH-Downtown. An overall minimum grade point average of 2.0 at UH-Downtown is required for graduation, and a minimum average of 2.0 must be maintained in the upper-level hours in the major.

Common Core Requirements (42 hours)

See listing under Common Core Requirements on page 24 of this Catalog. COMM 3306 is recommended in fulfillment of the speech component.

Lower-Level Requirements (15 hours)

Philosophy (6 hours)

Literature (3 hours)

Approved lower-level electives: 6 hours, chosen with a concentration area in mind in consultation with the degree coordinator or college advisor.

Upper-Level Requirements (45-48 hours)

COMM 3306 Business and Professional Speech

Communication (may be omitted here if taken as part of the core curriculum)

ENG 3302 Business and Technical Report Writing (3 hours)

ENG 3304 Advanced Business and Technical Report Writing (3 hours)

ENG 3330 Desktop Publishing (3 hours)

ENG 3331 Advanced Desktop Publishing (3 hours)

ENG 4322 Editing, Rewriting and Copyreading (3 hours)

ENG 4380 Field Experience or approved substitute courses in English or communication (6 hours)

Any 3 upper-level literature courses (9 hours)

Any 3 upper-level writing/English language courses (9 hours), including one writing-for-special-purposes course, such as Science Writing, Medical Writing, Legal Writing, Documentation and Manuals, Proposal Writing, Public Relations, Feature Writing, Environmental Writing

Approved upper-level electives (6 hours), chosen with a concentration area in mind in consultation with a college advisor.

Electives (15-18 hours)

From any department at any level, with the following restrictions: Developmental courses (ENG 1300, MATH 0300, MATH

1300 and RDG 1300) may not apply to graduation requirements. No more than 25 percent of the hours presented for graduation may be credits in business. Included among the electives should be a course (3 hours) in nonverbal analytical skills if this requirement is not fulfilled by an equivalent course in the lower-level or upper-level requirements. ADM 1301 is recommended for students who need keyboarding skills. Electives are an important part of the degree program and should be selected in consultation with an academic advisor.

Minor in Professional Writing (18 hours minimum)

Required Courses (12 hours)

- ENG 3302 Business and Technical Report Writing
- ENG 3304 Advanced Business and Technical Report Writing
- ENG 3330 Desktop Publishing
- ENG 4322 Editing, Rewriting and Copyreading

Upper-Division Electives (6 hours), selected in consultation with an advisor from courses in Writing/English language (see Major in English).

Bachelor of Arts

Major in English

William Gilbert, PhD, Coordinator
Room 1045-South, 713-221-8013

Degree Requirements

The English major requires a minimum of 122 hours. For degree completion, at least 25 percent of the semester credit hours must be earned through instruction offered by UH-Downtown. The last 30 of the total hours and 18 of the upper-level hours toward the degree must be successfully completed in residence at UH-Downtown. An overall minimum grade point average of 2.0 at UH-Downtown is required for graduation, and a minimum average of 2.0 must be maintained in the upper-level hours in the major.

Common Core Requirements (42 hours)

See listing under Common Core Requirements on page 24 of this Catalog.

Lower-Level Requirements (29 hours)

Foreign language in one language (8 hours)

Fine Arts (3 hours)

Philosophy (6 hours)

Social Sciences (6 hours)

Literature, both halves of a survey of Western World, American, or British Literature (6 hours)

Upper-Level Requirements (36 hours)

Genre Courses (9 hours)

- ENG 3311 Studies in Poetry (3 hours)
- ENG 3312 Studies in Fiction (3 hours)
- ENG 3313 Studies in Dramatic Literature (3 hours)

Writing/English language (6 hours), such as Essay Writing, Creative Writing, History of Rhetoric, Studies in the Theory of Rhetoric, Introduction to the Study of Language, or History of the English Language.

Literature/Theory (21 hours)

Electives (15 hours)

From any department at any level, with the following restrictions: Developmental courses (ENG 1300, MATH 0300, MATH 1300 and RDG 1300) may not apply to graduation requirements. No more than 25 percent of the hours presented for graduation may be credits in business. Included among the electives should be a course (3 hours) in nonverbal analytical skills if this requirement is not fulfilled by an equivalent course in the lower-level or upper-level requirements.

Minor in English (18 hours minimum)

Required Courses (9 hours)

Six hours, both halves of sophomore survey of Western World, American, or British Literature.

Three hours in one of the genre courses (ENG 3311, 3312, or 3313).

Upper-Level Electives (9 hours)

Selected in consultation with an advisor from courses in Literature/Theory and/or Writing/English language.

Department of Social Sciences

Linda Vaden-Goad, PhD, Chair
Room 1009-South, 713-221-8014

FACULTY

Professors:	Brigman, Christian, Fairbanks, Hampton, Haney
Associate Professors:	Alvarez, Berry, Getz, McCaffrey, Thacker-Kumar, Turner, Vaden-Goad, Williams, Wilson
Assistant Professors:	Behan, Chadha, Grebowicz, Linklater, Ryden, Santos, Webb, Ziemer
Lecturers:	Badr, MacGregor, McLaughlin, Valkyrie
Emeriti:	Wright
Academic Areas:	anthropology, geography, history, philosophy, political science, psychology, sociology

Programs of Study

Bachelor of Arts (BA), majors in:

- History
- Social Sciences

Bachelor of Science (BS), majors in:

- Political Science
- Psychology
- Social Sciences
- Sociology

Mission and Objectives

The Department of Social Sciences is an interdisciplinary department. Faculty teach courses and conduct research in seven academic areas: anthropology, geography, history, philosophy, political science, psychology, and sociology. In addition to classes in these disciplines, we offer interdisciplinary

classes in the social sciences. Currently, six degrees may be taken in our department: History (BS), Political Science (BS), Psychology (BS), Sociology (BS), and Social Sciences (BA or BS). Please come visit us, or call and talk with us about your interests and plans.

The department's educational philosophy is holistic in emphasizing the importance of students' educational and professional growth both inside and outside of the classroom. Our degree programs prepare students in a number of ways: students are provided with job skills relevant to their career aspirations, a readiness for graduate or professional school, and a strong, broad-based background in the liberal arts which is important in the ever-changing social and economic environment.

Among the essential components of the department's mission are community-based research and public service, and these also constitute integral parts of the department's educational program. All of the department's degree programs are designed to develop skills in research and analysis. Students also are strongly encouraged to engage in internships (for credit), volunteer service activities, or other degree-related work experiences in which classroom theory can be applied to "real-life" problems.

The study and practice of the social sciences provide the means for students to unify their learning, since the social sciences, in attempting to understand human individuals and institutions, employ both the methodologies of the linguistically-oriented humanistic disciplines and the empirically-based natural sciences. Thus our unique contribution to the intellectual life of the university is to provide the arena in which all viewpoints can meet and exchange.

Honor Societies

Pi Gamma Mu—International Social Sciences Honorary Society
Psi Chi—National Honor Society in Psychology

Bachelor of Arts

Major in History

James McCaffrey, PhD, Degree Coordinator
Room 1023-South, 713-221-8421

The program in history leading to a Bachelor of Arts degree may prepare a student for graduate school in history as well as other disciplines, including law, political science, economics, and anthropology. Some history students also seek elementary or secondary education certification.

Degree Requirements

The Bachelor of Arts with a major in History requires a minimum of 122 hours. For degree completion, at least 25 percent of the semester credit hours must be earned through instruction offered by UH-Downtown. The last 30 of the total hours in the degree and 18 of the upper-level hours in the major must be successfully completed in residence at UH-Downtown. An overall minimum grade point average of 2.0 at UH-Downtown is required for graduation, and a minimum average of 2.0 must be maintained in the upper-level hours in the major.

Common Core Requirements (42 hours)

See listing under Common Core Requirements on page 24 of this Catalog.

Preparatory Requirements (29 hours)

These courses are preliminary requirements for the degree and are in addition to the core curriculum:

- SOS 3312 Statistics in the Social Sciences
- PHIL 3301 Moral Issues, Personal and Professional or equivalent (to fulfill the general education requirement in ethics)

Three hours in literature

Three hours in anthropology or sociology.

Three hours in the fine arts.

Fourteen hours in a foreign language or second-year competency. If fourteen hours are not required due to advanced placement, see statement under Free Electives.

Major Requirements (24 hours)

Non-US history:

HIST 3315 World History to 1500 AD

HIST 3316 World History since 1500 AD

Three hours chosen from this list:

HIST 3301 Europe in Crisis

HIST 3308 History of Mexico

HIST 3309 Twentieth Century England

HIST 3310 Russia in Transition

HIST 3317 Middle Eastern History

HIST 4312 History of Modern China

Twelve additional hours of courses in History at the 3000 or 4000 level.

HIST 4310 Research and Writing Seminar

Free Electives (27 hours)

From any department at any level, with the following restrictions: Developmental courses (ENG 1300, MATH 0300, MATH 1300 and READ 1300) may not apply to graduation requirements. No more than 25 percent of the hours presented for graduation may be credits in business. Electives are an important part of the degree program and should be selected in consultation with an academic advisor.

If a student is able to bypass foreign language classes because of placement, any hours not transcribed must be made up in elective credits in order to bring the total number of semester credit hours for the degree to no fewer than 120.

Bachelor of Science

Major in Political Science

William E. Brigman, PhD, Degree Coordinator
Room 1027-South, 713-221-8424

The program in political science leading to a Bachelor of Science degree is designed to prepare a student for graduate school in political science as well as other disciplines, including law, history, economics, and anthropology. It is also excellent grounding in the operations of governmental, political, and other complex organizations.

Degree Requirements

The Bachelor of Science with a major in Political Science requires a minimum of 120 hours. For degree completion, at least 25 percent of the semester credit hours must be earned through instruction offered by UH-Downtown. The last 30 of the total

hours in the degree and 18 of the upper-level hours in the major must be successfully completed in residence at UH-Downtown. An overall minimum grade point average of 2.0 at UH-Downtown is required for graduation, and a minimum average of 2.0 must be maintained in the upper-level hours in the major.

Common Core Requirements (42 hours)

See listing under Common Core Requirements on page 24 of this Catalog.

Preparatory Requirements (15 hours)

These courses are preliminary requirements for the degree and are in addition to the core curriculum:

- SOS 2304 Research Methods in the Social Sciences
- SOS 3312 Statistics in the Social Sciences

Geography or Economics (6 hours in any combination)

Math or Natural Science

Upper Level Requirements (36 hours)

- English 3302, 3308, or 3326
- Social Sciences 4301 or 4380

21 hours from 3000-4000 level Political Science courses

9 additional hours in Political Science or advisor approved courses

Electives (27 hours)

Free Electives (27 hours). From any department at any level, with the following restrictions: Developmental courses (ENG 1300, MATH 0300, MATH 1300 and READ 1300) may not apply to graduation requirements. No more than 25 percent of the hours presented for graduation may be credits in business. One of the courses must be in Ethics unless the requirement is filled elsewhere. An English course with "literature" in the title is recommended. Electives are an important part of the degree program and should be selected in consultation with an academic advisor.

Only 66 junior/community college hours will apply.

Bachelor of Science

Major in Psychology

Heidi Ziemer, PhD, Coordinator
Room 1009-South, 713-221-8282

The program in psychology leading to a Bachelor of Science degree may prepare a student for graduate school in psychology and other disciplines. It also serves as preparation for entry-level positions in the field of mental health and other types of employment, including social service agencies and business. The study of psychology also provides a foundation of knowledge for healthy coping with life circumstances and human relationships.

Degree Requirements

The Bachelor of Science with a major in Psychology requires a minimum of 120 hours. For degree completion, at least 25 percent of the semester credit hours must be earned through instruction offered by UH-Downtown. The last 30 of the total hours in the degree and 18 of the upper-level hours in the major must be successfully completed in residence at UH-Downtown. An overall minimum grade point average of 2.0 at UH-Downtown is required for graduation, and a minimum average of 2.0 must be maintained in the upper-level hours in the major.

Common Core Requirements (42 hours)

See listing under Common Core Requirements on page 24 of this Catalog. In fulfillment of the Behavioral Sciences requirement, PSY 1303 is recommended. If not taken in the core, PSY 1303 should be added to the following preparatory requirements.

Preparatory Requirements (21-24 hours)

These courses are preliminary requirements for the degree and are in addition to the core curriculum, with the possible exception of one three-hour course in introductory behavioral science that may have been taken as part of the core:

- PSY 1303 Introduction to Psychology
- SOC 1303 Principles of Sociology
- ANTH 2301 Physical Anthropology

or

- ANTH 2302 Cultural Anthropology
- SOS 2304 Research Methods in the Social Sciences
- SOS 3312 Statistics in the Social Sciences

Three hours in philosophy to fulfill the general education requirement in ethics, chosen from this list:

- PHIL 1301 Introduction to Philosophy
- PHIL 2301 Classical Philosophy
- PHIL 2302 Modern Philosophy
- PHIL 3301 Moral Issues, Personal and Professional
- PHIL 3302 Philosophy of Science
- PHIL 3305 Contemporary Philosophy

Three hours in mathematics or science.

Three hours in literature.

Major Requirements (27 hours)

Twenty-four hours of courses in Psychology at the 3000 or 4000 level.

Three hours of internship or special project credit from either

- SOS 4301 Special Projects in the Social Sciences
(similar to a senior honors thesis)

or

- SOS 4380 Field Experience in the Social Sciences
(Recommended)

Related Requirements (9 hours)

These are upper-level courses in support of the degree. Courses in this category, together with courses chosen as free electives, may be used toward a minor, at the student's option:

Advanced Writing (3 hours), one of the following courses:

- ENG 3302 Business and Technical Report Writing
- ENG 3325 Medical Writing
- ENG 3326 Proposal Writing
- ENG 4306 Science Writing

Social and Behavioral Science Electives (6 hours), two of the following courses:

Any upper-level course in Psychology

Any upper-level course in Sociology

- MGT 3301 Management of Organizations
- MGT 3302 Personnel Administration
- MGT 3303 Negotiating Skills and Techniques
- MKT 3301 Marketing Principles
- SOS 3301 Social Gerontology
- SOS 3304 Death and Dying
- SOS 4302 The Study of the Future

Free Electives (18-21 hours)

From any department at any level, with the following restrictions: Developmental courses (ENG 1300, MATH 0300, MATH 1300 and READ 1300) may not apply to graduation requirements. No more than 25 percent of the hours presented for graduation may be credits in business. Electives are an important part of the degree program and should be selected in consultation with an academic advisor. No degree program may have fewer than 120 semester credit hours.

Bachelor of Science

Major in Sociology

J. Greg Getz, PhD, Coordinator
Room 1009-South, 713-221-8939

The program in sociology leading to a Bachelor of Science degree may prepare a student for graduate school in sociology and other disciplines. It also serves as preparation for entry-level positions in social service agencies and business. The study of sociology provides a unique perspective for studying complex social problems including poverty, racial discrimination, crime, violent behavior, and drug use. Different courses focus on important institutions including the family, economy, government, and education.

Degree Requirements

The Bachelor of Science with a major in sociology requires a minimum of 123 hours. For degree completion, at least 25 percent of the semester credit hours must be earned through instruction offered by UH-Downtown. The last 30 of the total hours in the degree and 18 of the upper-level hours in the major must be successfully completed in residence at UH-Downtown. An overall minimum grade point average of 2.0 at UH-Downtown is required for graduation, and a minimum average of 2.0 must be maintained in the upper-level hours in the major.

Common Core Requirements (42 hours)

See listing under Common Core Requirements on page 24 of this Catalog. In fulfillment of the Behavioral Sciences requirement, SOC 1303 is recommended. If not taken in the core, SOC 1303 should be added to the following supplemental requirements.

Supplemental Course Requirements (18-21 hours)

These courses are preliminary requirements for the degree and are in addition to the core curriculum, with the possible exception of one three-hour course in introductory behavioral science that may have been taken as part of the core:

PSY 1303 Introduction to Psychology
SOC 1303 Principles of Sociology
ANTH 2301 Physical Anthropology

or

ANTH 2302 Cultural Anthropology
SOS 2304 Research Methods in the Social Sciences
SOS 3312 Statistics in the Social Sciences

Three hours in philosophy to fulfill the general education requirement in ethics:

PHIL 3302: Philosophy of Science is the preferred course. Other upper-level philosophy courses may be substituted at the discretion of the degree coordinator.

Three hours in mathematics, science, or computer science.

Additional Lower-Level Requirements (9 hours)

6 hours of lower level sociology courses

3 hours of lower level sociology, psychology, or anthropology electives

Major Requirements (27 hours)

Twenty-one hours of courses in Sociology at the 3000 or 4000 level.

Three hours of SOC 3301, Sociological Theory

Three hours of internship or special project credit from either
SOS 4301 Special Projects in the Social Sciences
(similar to a senior honors thesis)

or

SOS 4380 Field Experience in the Social Sciences
(*Recommended)

Related Requirements (9 hours)

These are upper-level courses in support of the degree. Courses in this category, together with courses chosen as free electives, may be used toward a minor, at the student's option:

Advanced Writing (3 hours), one of the following courses:

ENG 3302 Business and Technical Report Writing
ENG 3325 Medical Writing
ENG 3326 Proposal Writing
ENG 4306 Science Writing

Social and Behavioral Science Electives (6 hours), two of the following courses:

Any upper-level course in Sociology, Psychology, Political Science, History, Philosophy, English, Speech, Humanities, Social Sciences, or Criminal Justice

BA 3301 Legal Environment of Business
BA 3302 Commercial Law
BA 3304 International Business Law
BA 3315 Diversity and the Law
BIOL 4350 Social Biology
MGT 3301 Management of Organizations
MGT 3302 Personnel Administration
MGT 3303 Negotiating Skills and Techniques
MGT 3307 Equal Opportunity Management
MKT 3301 Marketing Principles
MKT 4305 Consumer Behavior
SOSE 3306 Culture of the Urban School
SOSE 3320 Assessment and Evaluation of Children

Free Electives (18 hours)

From any department at any level, with the following restrictions: Developmental courses (ENG 1300, MATH 0300, MATH 1300 and READ 1300) may not apply to graduation requirements. No more than 25 percent of the hours presented for graduation may be credits in business. Electives are an important part of the degree program and should be selected in consultation with an academic advisor. No degree program may have fewer than 120 semester credit hours.

Interdisciplinary Degrees

The Bachelor of Arts and Bachelor of Science degrees with majors in Social Sciences are interdisciplinary degrees meant to prepare the graduate with a general foundation across the social sciences,

and the experience of deeper inquiry in at least two areas of study in the social sciences. For purposes of these degrees, the social sciences include history, political science, psychology and sociology. Because this is an interdisciplinary degree, no more than 18 hours of upper-level work in a single discipline may be applied to the major, and no more than 27 total hours in a single discipline (excluding course work required to fulfill Common Core Requirements) may be used to satisfy degree requirements.

Degree Requirements

The Bachelor of Arts with major in Social Sciences requires a minimum of 122 hours, including a foreign language requirement. The Bachelor of Science with major in Social Sciences requires a minimum of 123 hours. For degree completion, at least 25 percent of the semester credit hours must be earned through instruction offered by UH-Downtown. For both degrees, the last 30 of the total hours and 18 of the upper-level hours toward the degree must be successfully completed in residence at UH-Downtown. An overall minimum grade point average of 2.0 at UH-Downtown is required for graduation, and a minimum grade point average of 2.0 must be maintained in the upper-level hours in the major.

Bachelor of Arts

Major in Social Sciences

Linda Vaden-Goad, PhD, Coordinator
Room 1009-South, 713-221-8014

Common Core Requirements (42 hours)

See listing under Common Core Requirements on page 24 of this Catalog. In fulfillment of the Behavioral Sciences requirement, PSY 1303 Introduction to Psychology is recommended. If not taken in the core, PSY 1303 should be added to the following additional basic requirements.

Additional Basic Requirements (29-32 hours)

- SOS 2304 Research Methods in the Social Sciences (3 hours)
 - SOS 3312 Statistics in the Social Sciences (3 hours)
 - ANTH 2301 Physical Anthropology (3 hours)
- or
- ANTH 2302 Cultural Anthropology (3 hours)
 - SOC 1303 Principles of Sociology (3 hours)
 - PSY 1303 Introduction to Psychology (3 hours)
(may be omitted here if taken as part of core curriculum)

Literature (3 hours)

Completion through sophomore year of a foreign language (14 hours). For students placing out of any foreign language courses, other courses in English, humanities or social sciences may be substituted.

Upper-Level Requirements (36 hours)

Twenty-one upper-level hours in social sciences from the following disciplines (21 hours)

- History
- Political Science
- Psychology
- Sociology

At least nine hours must be taken in each of two separate disci-

plines. No more than 18 upper-level hours in a single discipline may be applied to the major. Courses in other social science disciplines or interdisciplinary courses may be applied to this requirement. Consult a college advisor.

Six hours upper-level courses in social sciences or related disciplines (6 hours)

- PHIL 3301 Moral Issues or another course to fulfill the ethics requirement (3 hours)
- ENG 3302 Business and Technical Report Writing or another upper-division writing course (3 hours)
- SOS 4301 Special Projects in Social Sciences (3 hours) or
- SOS 4380 Field Experience in the Social Sciences (Recommended)

Electives (15 hours):

From any department at any level, with the following restrictions: Developmental courses (ENG 1300, MATH 0300, MATH 1300 and RDG 1300) may not apply to graduation requirements. No more than 25 percent of the hours presented for graduation may be credits in business. Electives are an important part of the degree program and should be selected in consultation with an academic advisor.

Bachelor of Science

Major in Social Sciences

Linda Vaden-Goad, PhD, Coordinator
Room 1009-South, 713-221-8014

Common Core Requirements (42 hours)

See listing under Common Core Requirements on page 24 of this Catalog. In fulfillment of the Behavioral Sciences requirement, PSY 1303 Introduction to Psychology is recommended. If not taken in the core, PSY 1303 should be added to the following additional basic requirements.

Additional Basic Requirements (18 hours)

- SOS 2304 Research Methods in the Social Sciences (3 hours)
 - SOS 3312 Statistics in the Social Sciences (3 hours)
 - ANTH 2301 Physical Anthropology (3 hours)
- or
- ANTH 2302 Cultural Anthropology (3 hours)
 - SOC 1303 Principles of Sociology (3 hours)

Literature (3 hours)

Mathematics or Natural Sciences (3 hours)

Upper-Level Requirements (36 hours)

Twenty-one upper-level hours in social sciences from the following disciplines (21 hours)

- History
- Political Science
- Psychology
- Sociology

At least nine hours must be taken in each of two separate disciplines. No more than 18 upper-level hours in a single discipline may be applied to the major. Courses in other social science disciplines or interdisciplinary courses may be applied to this requirement. Consult a college advisor.

Six hours upper-level courses in social sciences or related disciplines (6 hours)

- PHIL 3301 Moral Issues or another course to fulfill the ethics requirement (3 hours)
ENG 3302 Business and technical Report Writing or another upper-division writing course (3 hours)
SOS 4301 Special Projects in Social Sciences (3 hours) or
SOS 4380 Field Experience in the Social Sciences (Recommended)

Electives (27 hours)

From any department at any level, with the following restrictions: Developmental courses (ENG 1300, MATH 0300, MATH 1300 and RDG 1300) may not apply to graduation requirements.

No more than 25 percent of the hours presented for graduation may be credits in business. Electives are an important part of the degree program and should be selected in consultation with an academic advisor.

Philosophy

Kathleen Haney, PhD, Coordinator
Room 1017-South, 713-221-8077

Students interested in philosophy may wish to consider the Bachelor of Arts with a major in Humanities, described in the catalog pages for the Department of Arts and Humanities.

Minor Program Requirements

Minor in History (18 hours minimum)

Six hours of U.S. History courses from the common core
Twelve additional hours of 3000/4000-level History courses

Minor in Philosophy (15 hours minimum)

Six hours of 1000/2000-level Philosophy courses
Nine hours from among the following courses:
PHIL any 3000/4000-level course

- POLS 3308 Introduction to Political Thinking
HUM 3301 Foundations of Western Culture I
HUM 3302 Foundations of Western Culture II
SOS 3302 Development of Political Ideas I
SOS 3303 Development of Political Ideas II

At least six of the 15 hours must be taken at UH-Downtown.

Minor in Political Science (18 hours minimum)

- POLS 2303 United States Government I
POLS 2304 United States Government II

Twelve additional hours of 3000/4000-level Political Sciences courses

Quantitative Methods in Research (18 hours)

Group A: Lower Level Preparatory requirements (6 hours)

- SOS 2304 Research Methods in the Social Sciences
MATH 1305 Finite Mathematics with Applications

Group B: Upper-Level Course work (9 hours)

- MATH 3310 Statistical Analyses and Applications II (required)

Select Two:

- MATH 4306 Mathematical Models and Computer Simulation
MATH 4307 Time Series

- MATH 4309 Design and Analysis of Experiments
MATH 4310 Applied Regression
PSY 4308 Psychological Assessment

Group C: Select One (3 hours)

- PHIL 2303 Logic
PHIL 4315 Symbolic Logic
PHIL 3302 Philosophy of Science

SOS majors seeking this minor will need the following courses as part of their regular degree:

MATH 1301 serves as a prerequisite for most of the courses in this minor.

SOS 3312 or MATH 3309 may serve as prerequisites for MATH 3310.

SOS 3312 Statistics in the Social Sciences (this cannot count toward minor because it is a required upper level course)

Minor in Psychology (18 hours minimum)

- PSY 1303 Introduction to Psychology

15 additional hours, including nine hours of 3000/4000-level courses, from among the following:

- PSY any course
SOS 2308 Human Sexuality
SOS 3301 Social Gerontology
SOS 3304 Death and Dying
SOS 3320 Assessment and Evaluation of Adolescents and Children

Minor in Sociology (18 hours minimum)

- SOC 1303 Principles of Sociology

15 additional hours, including nine hours of 3000/4000-level courses, from among the following:

- SOC any course
SOS 2308 Human Sexuality
SOS 3301 Social Gerontology

Pre-Law Studies

William E. Brigman, PhD, Advisor
Room 1027-South, 713-221-8424

Students interested in pre-law studies, regardless of their major, may contact Dr. Brigman. Catalogs of many law schools also are available for review through the pre-law advisor.

Military Science

(Cooperative Program with University of Houston)

Lt. Col. Michael R. Czaja, Chair

UHD Contact: **Linda Vaden-Goad**, Chair, Social Sciences
Room 1009-South, 713-221-8014

Faculty

Professors: Czaja

Assistant Professors: Avery, Gass, Reyna, Caston, Whitfield

The goal of the U.S. Army ROTC program is to develop technically competent, physically fit and highly motivated men and women for positions of responsibility as commissioned officers in the active Army, the Army Reserve and National Guard.

Upon completion of the curriculum, students will have an understanding of the fundamental concepts and principles of the military as an art and as a science. The leadership and managerial experience gained through ROTC provides great benefit for students in both their civilian endeavors and their military careers.

Statutory Authority

General statutory authority for establishment and operation of the ROTC program, including the scholarship program, is contained in Title 10, United States Code, Chapter 103 (Sec. 2102-2111). Specific rules and procedures are found in U.S. Army Regulation 145-1.

Course Credit

ROTC classes may be taken for elective credit toward any degree plan at the University of Houston-Downtown. Freshman and sophomore level classes are open to all students, regardless of age or physical condition. No military obligation is incurred as a result of enrollment in these courses. Junior and senior level courses are more restrictive and do require a military obligation. ROTC scholarship students also incur a military obligation.

Four-Year Program

The four-year program is divided into two courses: the basic course, which is normally attended by students during their freshman and sophomore years, and the advanced course, attended during the junior and senior years. Advanced course students attend a six-week advanced camp at Fort Lewis, Washington, normally between their junior and senior years.

Basic Course

The basic course consists of four semesters of military science which includes: MSCI 1210, 1220, 2210 and 2220. These freshman and sophomore level classes are open to all students without obligation.

Advanced Course

Students entering the advanced course must enter into a contract to pursue and accept a commission in the active Army, the Army Reserve or the National Guard. To be considered for contracting into the advanced course, the student must be a full-time student in a course of instruction that leads to a degree in a recognized academic field, have a minimum of two years of academic work remaining in a curriculum leading to a baccalaureate or advanced degree, be under age 30 when commissioned, and pass a physical examination.

Two-Year Program

The two-year program is designed for students who did not take the basic course but are otherwise eligible to enroll in the advanced course. This program allows students completing their sophomore year to attend a five-week "basic camp" during June and July at Fort Knox, Kentucky, in lieu of taking the first two years of ROTC. There is no military obligation for attending Basic Camp. The Army provides transportation, room, and board. Students are paid approximately \$700 for the five-week period.

Laboratory Requirements

A military science laboratory is required for students enrolling in MSCI 1210, 1220, 2210, 2220, 3310, 3320, 4310 and 4320. This laboratory provides opportunities for marksmanship training, rappelling, drill and ceremonies, communications training, and other activities.

Veterans

Veterans who have served on active duty or in the Army Reserve or National Guard are also eligible for the ROTC program. Although veterans are not required to take the Basic

Course, they are encouraged to do so. All students, including veterans, must have a minimum of 60 credit hours prior to enrolling in the Advanced Course.

National Guard and Army Reserve Members

Students enrolled in ROTC may also be a member of the Army Reserve or National Guard. Through the Simultaneous Membership Program (SMP), those students enrolled in the Advanced Course will be assigned in a leadership position as a cadet and receive pay and entitlements from the Guard or Reserve in the pay grade of Sergeant (E-5).

Scholarships

The United States Army offers, on a competitive nationwide basis, four-, three-, and two-year scholarships. The scholarships will cover up to \$16,000 of tuition. Recipients will also receive benefits for educational fees (to include lab fees), a book allowance and a subsistence allowance of \$200 per month. Applicants must be U.S. citizens and must be under age 27 on the anticipated graduation date. Applications are available from the military science department. Veteran applicants can extend the age limit up to a maximum of three years, based on prior active duty service.

Other Financial Aid

All students enrolled in the Advanced Course will receive a subsistence allowance of \$200 per month. For more information contact the Military Science Department at the University of Houston (713-743-3875). GI Bill recipients still retain benefits.

Tuition

Members of the Army or the National Guard, Texas State Guard, or other reserve forces may be exempted from the non-resident tuition fee and other fees and charges.

Special Training

Basic and advanced course students may volunteer for and attend the U.S. Army Airborne and Air Assault courses during June, July and August. Cadet Troop Leadership training positions are also available to Advanced Course cadets during the summer months.

Miscellaneous

Cadets in the Advanced Course are paid an allowance of \$200 per month during the school year. Military textbooks and uniforms are furnished to all cadets.

The Corps of Cadets sponsors an annual military ball in addition to other social events throughout the school year. The Department of Military Science at the University of Houston sponsors extracurricular activities such as the University of Houston Color Guard and the Ranger Challenge Team.

Department of Urban Education

Maria Bhattacharjee, EdD, Chair
Room 629-South, 713-221-8906

FACULTY

Associate Professors: Bhattacharjee, R. Johnson, Key, Sikka
Assistant Professors: Brown, Chen, Cohen, Cmajdalka, Garcia, Hare, Hood, Middleton, Mullinnix, Nath, Thielemann, Van Horn, Woods-Stellman, Taylor, Villarreal

Instructor: Paige
Academic Areas: Elementary Education, Bilingual Education, and Secondary Education

Programs of Study

Post-baccalaureate Teacher Certification
Bachelor of Arts in Interdisciplinary Studies

Certification Areas:

Early Childhood–Fourth Grade Elementary Generalist
Early Childhood–Fourth Grade Bilingual Generalist
Fourth–Eighth Grade Elementary Generalist
Fourth–Eighth Grade Bilingual Generalist
Fourth–Eighth Grade Language Arts/Social Studies Specialist

Master of Arts in Teaching

Elementary Education
Bilingual Education
Secondary Education
Curriculum & Instruction

Mission and Objectives

The Urban Education Department offers preparation for both undergraduate and post-baccalaureate students seeking elementary, bilingual, or secondary certification. Professional Development and field-based courses in this department are taught as interdisciplinary blocks (9-10 hours each) and are field-based in selected public schools within several Houston metropolitan area districts.

Building upon an understanding of cultural, economic, and linguistic diversity developed through the program's general education requirements and its Urban Education Core, the Interdisciplinary Blocks will provide opportunities for future teachers to:

- (1) observe and interact with master teachers and divergent learners within the school setting.
- (2) interact with children of diverse backgrounds and experiences to create an understanding of themselves, their own culture, and the cultures of others.
- (3) develop a community of learners which acknowledges the similarities of diverse members and appreciates differences.
- (4) plan and implement effective strategies which ensure academic success for all learners
- (5) use technology in effective ways to enhance student achievement.

To promote and ensure student success, the curriculum is designed based on (a) state certification standards; (b) Texas Essential Knowledge and Skills, and (c) state teacher education proficiencies. It is expected that at the end of the teacher education program, the new teacher will have internalized the state-identified proficiencies for teacher education and will successfully pass the state certification examination.

Post-baccalaureate Teacher Certification

Students who possess a baccalaureate degree may obtain certification through a deficiency plan. A deficiency plan sponsored by the University of Houston-Downtown requires a minimum of 27 SCH beyond a bachelor's degree. All courses taken in fulfillment of the deficiency plan are to be taken at the University of Houston-Downtown or through the University of Houston System at Fort Bend sites unless a waiver is obtained from the Office of the Dean of Humanities and Social Sciences.

PLEASE NOTE:

The State Board for Educator Certification (SBEC) has issued new teacher certification licensure levels.

The Department of Urban Education at UHD has developed new teacher preparation (degree/certification) programs to comply with these levels. Continual program revisions, particularly in the secondary programs, may occur over the next academic year. Course requirements and sequencing are subject to change. All students pursuing teacher certification plans must understand that programs are in transition.

Although the advising staff will make every effort to communicate program changes as they occur, it is the responsibility of each student to stay apprised of any changes which may affect degree plans. Thus constant monitoring of plans is necessary and students are urged to visit regularly with an academic advisor.

Requirements for All Undergraduate Degrees

The degree programs in Urban Education require a minimum of 132–139 semester credit hours (SCH). For degree completion, at least the last 30 SCH, representing the professional development and field-based courses, must be earned through instruction offered by the University of Houston-Downtown. Formal admission to Teacher Education requires the following:

- a. Formal application to the program
- b. 2.5 overall grade point average (GPA) for undergraduate majors or 2.5 overall GPA for post-baccalaureate students.
- c. 2.5 GPA in Academic Major courses
- d. 40 SCH of course work
- e. Successful completion of TASP

The University Core and foreign language instruction must be chosen as part of these degrees. Graduation requires successful completion of all course work including three interdisciplinary blocks of courses, and passage of Block Exams. In addition, certification requires acceptable scores on state-mandated certification examinations.

Bachelor of Arts in Interdisciplinary Studies

Students seeking a Bachelor of Arts in Interdisciplinary Studies degree will select among five certification programs:

Early Childhood–Fourth Grade Elementary Generalist
Early Childhood–Fourth Grade Bilingual Generalist
Fourth–Eighth Grade Elementary Generalist
Fourth–Eighth Grade Bilingual Generalist
Fourth–Eighth Grade Language Arts/Social Studies Specialist

Early Childhood–Fourth Grade Elementary Generalist (132-137 SCH)

Common Core Requirements

See listing under Common Core Requirements on page 24 of this Catalog. Students who have not yet completed their history requirement in the core are urged to fulfill 3 SCH of the requirement by taking HIST 2309 (Ethnic Minorities in American History). In fulfillment of the Behavioral Science requirement, PSY 1303 (Introduction to Psychology) is recommended.

Academic Major and Non-Field-based Courses

These courses are preliminary requirements for the degree and are in addition to the core curriculum. These courses fulfill the Academic Major Requirements and include other courses that

are not field-based for students in the Early Childhood–Fourth Grade Elementary Generalist certification program.

- READ 3305 Foundations of Literacy Development and Instruction EC-8
- READ 3306 Language and Literacy (Prerequisite: admission to Teacher Education)
- READ 3307 Language Arts Instruction (Prerequisite: READ 3305, admission to Teacher Education)
- ECH 2311 Curriculum for the Early Childhood/Kindergarten Classroom
- ECH 2313 The Early Childhood Learning Environment

Select 3 SCH from the following two courses:

- ECH 2312 The Young Child
- PSY 3303 Child Psychology (Prerequisite: PSY 1303)
- GEOG 1302 World Geography

Select 3 SCH from the following two courses:

- HIST 2303 Texas History (Prerequisite or Concurrent Enrollment: ENG 1301)
- POLS 3309 Texas Politics (Prerequisites: POLS 2303, POLS 2304 and junior standing)
- NS 3310 Physical Science Studies (Prerequisite: admission to Teacher Education)
- NS 3311 Earth and Environmental Science Studies (Prerequisite: admission to Teacher Education)
- NS 3312 Life Science Studies (Prerequisite: admission to Teacher Education)
- MATH 3321 Math Concepts I (Prerequisites: MATH 1301, admission to Teacher Education)
- MATH 3322 Math Concepts II (Prerequisites: MATH 1301, admission to Teacher Education)
- ENG 3351 Children's Literature (Prerequisite: 3 SCH of literature)

Select 3 SCH from the following two courses:

- ENG 3318 Advanced English Grammar for Writers (Prerequisite: ENG 1302 and junior standing)
- ENG 3305 Essay Writing (Prerequisite: ENG 1302 and junior standing)

Select 3 SCH from the following two courses:

- ENG 3319 Introduction to the Study of Language (Prerequisite: ENG 1302, junior standing)
- ENG 3320 History of the English Language (Prerequisite: ENG 1302 and junior standing)
- SOSE 3306 Culture of the Urban School (Prerequisite: Introductory course in social sciences)
- SOSE 3320 Assessment and Evaluation of Children (Prerequisites: PSY 1303)
- ETC 3301 Educational Technology (Prerequisite: CS 1305 or CIS 1301, or demonstrated competencies)
- SPAN 3–8 SCH (depending upon placement)
- PED 3304 Aesthetic & Physical Development of Children (Prerequisite: admission to Teacher Education)

Professional Development and Field-based Courses

The Professional Development courses require concurrent enrollment in specific field-based blocks of courses. Fifteen clock-hours per week are required for Blocks I and II. Block III represents a full-semester, full-day student teaching experience. In order to successfully complete each block, students must demonstrate mastery of the content by passing a comprehensive Block Exam

at the end of Blocks I and II. Admission to these blocks is approved by the advisor/coordinator of the Urban Education Department.

Block I

(Prerequisites: admission to Teacher Education, READ 3305, READ 3306, MATH 3321, and MATH 3322. Additional Prerequisite and/or Concurrent Enrollment: SOSE 3306, ETC 3301)

- EED 3301 Understanding the Learner in Elementary School
- EED 3312 Effective Teaching Strategies in Mathematics Education
- READ 3303 Literacy Curriculum, Methods, and Assessment EC-2

Block II

(Prerequisites: Block I, Passing Score on Block I Exam,)

- EED 3311 Teaching Social Studies in the Elementary Classroom
- EED 3315 Effective Teaching Strategies in Science Education
- READ 4303 Literacy Curriculum, Methods, and Assessment 2-4

Block III

(Prerequisites: Block II, Passing Score on Block II Exam)

- EED 4301 Student Teaching in the Elementary Classroom
- EED 4304 Student Teaching in the Early Childhood Classroom
- SOSE 4303 Current Issues in Urban Teaching

Total: 132-137 SCH

Early Childhood–Fourth Grade Bilingual Generalist (135-139 SCH)

Common Core Requirements

See listing under Common Core Requirements on page 24 of this Catalog. Students who have not yet completed their history requirement in the core are urged to fulfill 3 SCH of the requirement by taking HIST 2309 (Ethnic Minorities in American History). In fulfillment of the Behavioral Science requirement, PSY 1303 (Introduction to Psychology) is recommended.

Academic Major and Non-Field-based Courses

These courses are preliminary requirements for the degree and are in addition to the core curriculum. These courses fulfill the Academic Major Requirements and include other courses that are not field-based for students in the Early Childhood–Fourth Grade Bilingual Generalist certification program.

- READ 3305 Foundations of Literacy Development and Instruction EC-8
- READ 3306 Language and Literacy Development (Prerequisite: READ 3305, admission to Teacher Education)
- ECH 2311 Curriculum for the Early Childhood/Kindergarten Classroom
- ECH 2313 The Early Childhood Learning Environment

Select 3 SCH from the following two courses:

- ECH 2312 The Young Child
- PSY 3303 Child Psychology (Prerequisites: PSY 1303 and 3 additional SCH in psychology)

Select 3 SCH from the following three courses:

- ENG 3318 Advanced English Grammar for Writers (Prerequisite: ENG 1302 and junior standing)
- ENG 3305 Essay Writing (Prerequisite: ENG 1302 and junior standing)
- ENG 3319 Introduction to the Study of Language

Select 3 SCH from the following two courses:

- ENG 3322 Mexican-American Literature (Prerequisite: 3 SCH of literature)
- ENG 3353 Social Class and Literature (Prerequisite: 3 SCH of literature)

Select 3 SCH from the following six courses:

- HIST 2303 Texas History (Prerequisite or Concurrent Enrollment: ENG 1301)
- POLS 3309 Texas Politics (Prerequisites: POLS 2303, POLS 2304 and junior standing)
- HIST 2309 Ethnic Minorities in American History (Prerequisite or Concurrent Enrollment: ENG 1301)
- SOC 3304 Minorities in America (Prerequisite: SOC 1303)
- SOC 3306 Social Inequity (Prerequisite: SOC 1303)
- NS 3310 Physical Science Studies (admission to Teacher Education)
- NS 3312 Life Science Studies (admission to Teacher Education)
- MATH 3321 Math Concepts I (Prerequisites: MATH 1301, admission to Teacher Education)
- MATH 3322 Math Concepts II (Prerequisites: MATH 1301, admission to Teacher Education)
- GEOG 1302 World Geography
- HUM 3330 Second Language Acquisition (Prerequisite: PSY 1303)
- SOSE 3306 Culture of the Urban School (Prerequisite: Introductory course in social sciences)
- SOSE 3320 Assessment and Evaluation of Children (Prerequisites: PSY 1303)
- ETC 3301 Educational Technology (Prerequisite: CS 1305 or CIS 1301, or demonstrated competencies)

Select 9 SCH of Spanish: (depending upon placement)

- SPAN 1401 Elementary Spanish I
- or
- SPAN 2311 Spanish I for Native Speakers
- SPAN 1402 Elementary Spanish II
- or
- SPAN 2312 Spanish II for Native Speakers
- SPAN 2301 Intermediate Spanish I (Prerequisite: SPAN 1402, SPAN 1412 or equivalent)
- SPAN 2302 Intermediate Spanish II (Prerequisite: SPAN 2301 or equivalent)
- SPAN 3301 Advanced Spanish Grammar and Composition (SPAN 2302 or placement by examination)
- SPAN 4310 Spanish Linguistics (Prerequisite: SPAN 3301 or approval of chair)
- PED 3304 Aesthetic & Physical Development of Children (Prerequisite: admission to Teacher Education)
- PED 3314 Children's Literature in Spanish (Prerequisite: admission to Teacher Education)
- BED 3311 Foundations of Bilingual/ESL Education (Prerequisite: admission to Teacher Education)

Professional Development and Field-based Courses

The Professional Development courses require concurrent enrollment in specific field-based blocks of courses. Fifteen clock-hours per week are required for Blocks I and II. Block III represents a full-semester, full-day student teaching experience. In order to successfully complete each block, students must demonstrate mastery of the content by passing a comprehensive Block Exam at the end of Blocks I and II. Admission to these blocks is approved by the advisor/coordinator of the Urban Education Department.

Block I

(Prerequisites: admission to Teacher Education, READ 3305. Additional Prerequisite and/or Concurrent Enrollment: SOSE 3306, ETC 3301)

- BED 3301 Understanding the Second Language Learner
- READ 3317 Language Arts Instruction for Bilingual/ESL
- READ 4306 Literacy Curriculum, Methods, and Assessment in the Bilingual/ESL Classroom 2-4

Block II

(Prerequisites: Block I, Passing Score on Block I Exam, MATH 3321, and MATH 3322)

- BED 4301 Teaching Language Arts and Reading in Spanish
- BED 4311 Integrating Curriculum in a Bilingual/ESL Classroom
- READ 3308 Literacy Curriculum, Methods, and Assessment in Spanish EC-2

Block III

(Prerequisites: Block II, Passing Score on Block II Exam)

- EED 4303 Student Teaching in the Bilingual/ESL Classroom
- EED 4304 Student Teaching in the Early Childhood Classroom
- SOSE 4303 Current Issues in Urban Teaching

Total: 138 SCH

Fourth–Eighth Grade Elementary Generalist (132-137 SCH)**Common Core Requirements**

See listing under Common Core Requirements on page 24 of this Catalog. Students who have not yet completed their history requirement in the core are urged to fulfill 3 SCH of the requirement by taking HIST 2309 (Ethnic Minorities in American History). In fulfillment of the Behavioral Science requirement, PSY 1303 (Introduction to Psychology) is recommended.

Academic Major and Non-Field-based Courses

These courses are preliminary requirements for the degree and are in addition to the core curriculum. These courses fulfill the Academic Major Requirements and include other courses that are not field-based for students in the Fourth–Eighth Grade Elementary Generalist certification program.

- READ 3305 Foundations of Literacy Development and Instruction EC-8
- READ 3309 Teaching Reading in the Content Areas 4–8 (Prerequisite: READ 3305)
- READ 3307 Language Arts Instruction (Prerequisite: READ 3305 admission to Teacher Education)
- ENG 3318 Advanced English Grammar for Writers (Prerequisites: ENG 1302, junior standing)

Select 3 SCH from the following two courses:

- ENG 3302 Business and Technical Report Writing (Prerequisite: 3 SCH in literature)
- ENG 3305 Essay Writing (Prerequisites: ENG 1302 and junior standing)

Select 3 SCH from the following two courses:

- ENG 3351 Children's Literature (Prerequisite: 3 SCH of literature)
- ENG 3355 Young Adult Literature (Prerequisite: 3 SCH of literature)

Select 3 SCH from the following two courses:

- ENG 3319 Introduction to Language (Prerequisite: ENG 1302, junior standing)
- ENG 3320 History of the English Language (Prerequisite: ENG 1302, junior standing)
- GEOG 1302 World Geography
- HIST 3316 World History since 1500 AD (Prerequisite: Junior Standing)

Select 3 SCH from the following three courses:

- SOC 1303 Principles of Sociology (Prerequisite or Concurrent Enrollment: ENG 1301)
- PSY 1303 Introduction to Psychology (Prerequisite or Concurrent Enrollment: ENG 1301)
- ANTH 2302 Cultural Anthropology (Prerequisite or Concurrent Enrollment: ENG 1301)

Select 3 SCH from the following three courses:

- HIST 2303 Texas History (Prerequisite or Concurrent Enrollment: ENG 1301)
- HIST 3312 Readings in Texas History (Prerequisites: Junior standing and 3 SCH in history)
- POLS 3309 Texas Politics (Prerequisites: POLS 2303, POLS 2304, junior standing)

Select 3 SCH from the following two courses:

- ECON 2301 Principles of Economics I (Prerequisites: MATH 1301 or MATH 1310)
- ECON 2302 Principles of Economics II (Prerequisites: MATH 1301 or MATH 1310)
- NS 3310 Physical Science Studies (Prerequisite: admission to Teacher Education)
- NS 3311 Earth and Environmental Science Studies (Prerequisite: admission to Teacher Education)
- NS 3312 Life Science Studies (Prerequisite: admission to Teacher Education)
- MATH 3321 Math Concepts I (Prerequisites: MATH 1301, admission to Teacher Education)
- MATH 3322 Math Concepts II (Prerequisites: MATH 1301, admission to Teacher Education)
- SOSE 3306 Culture of the Urban School (Prerequisite: Introductory course in social sciences)

- SOSE 3320 Assessment and Evaluation (Prerequisites: PSY 1303)
- ETC 3301 Educational Technology (Prerequisites: CS 1305 or CIS 1301, or demonstrated competencies)
- SPAN 3-8 SCH (depending upon placement)

Professional Development and Field-based Courses

The Professional Development courses require concurrent enrollment in specific field-based blocks of courses. Fifteen clock-hours per week are required for Blocks I and II. Block III represents a full-semester, full-day student teaching experience. In order to successfully complete each block, students must demonstrate mastery of the content by passing a comprehensive Block Exam at the end of Blocks I and II. Admission to these blocks is approved by the advisor/coordinator of the Urban Education Department.

Block I

(Prerequisites: admission to Teacher Education, READ 3305. Additional Prerequisite and/or Concurrent Enrollment: SOSE 3306, ETC 3301)

- EED 3316 Understanding the Adolescent Learner and Environment
- EED 3311 Teaching Social Studies in the Elementary Classroom
- READ 3304 Reading Curriculum, Methods, and Assessment 4–8

Block II

(Prerequisites: Block I, Passing Score on Block I Exam, MATH 3321, and MATH 3322)

- EED 3312 Effective Teaching Strategies in Mathematics Education
- EED 3315 Effective Teaching Strategies in Science Education
- READ 4304 Diagnostic Instruction of Reading 4-8

Block III

(Prerequisites: Block II, Passing Score on Block II Exam)

- EED 4301 Student Teaching Elementary
- EED 4302 Student Teaching Middle School Classroom
- SOSE 4303 Issues in Urban Teaching

Total: 132–137 SCH

Fourth–Eighth Grade Bilingual Generalist (138 SCH)

Common Core Requirements

See listing under Common Core Requirements on page 24 of this Catalog. Students who have not yet completed their history requirement in the core are urged to fulfill 3 SCH of the requirement by taking HIST 2309 (Ethnic Minorities in American History). In fulfillment of the Behavioral Science requirement, PSY 1303 (Introduction to Psychology) is recommended.

Academic Major and Non-Field-based Courses

These courses are preliminary requirements for the degree and are in addition to the core curriculum. These courses fulfill the Academic Major Requirements for students in the Early Childhood–Fourth Grade Bilingual Generalist.

- READ 3305 Foundations of Literacy Development and Instruction EC-8

- READ 3307 Language Arts Instruction (Prerequisite: READ 3305 and admission to Teacher Education)
- READ 3309 Teaching Reading in the Content Area 4-8 (Prerequisite: READ 3305)
- BED 3311 Foundations of Bilingual/ESL Education (Prerequisite: admission to Teacher Education)

Select 3 SCH from the following two courses:

- ENG 3319 Introduction to the Study of Language
- ENG 3320 History of the English Language

Select 3 SCH from the following two courses:

- ENG 3322 Mexican-American Literature (Prerequisite: 3 SCH of literature)
- ENG 3353 Social Class and Literature (Prerequisite: 3 SCH of literature)

Select 3 SCH from the following two courses:

- ENG 3318 Advanced English Grammar for Writers (Prerequisite: ENG 1302 and junior standing)
- ENG 3305 Essay Writing (Prerequisite: ENG 1302 and junior standing)

Select 3 SCH from the following two courses:

- HIST 2303 Texas History (Prerequisite or Concurrent Enrollment: ENG 1301)
- POLS 3309 Texas Politics (Prerequisites: POLS 2303, POLS 2304 and junior standing)
- NS 3310 Physical Science Studies (Prerequisite: admission to Teacher Education)
- NS 3311 Earth and Environmental Science Studies (Prerequisite: admission to Teacher Education)
- NS 3312 Life Science Studies (Prerequisite: admission to Teacher Education)
- MATH 3321 Math Concepts I (Prerequisites: MATH 1301, admission to Teacher Education)
- MATH 3322 Math Concepts II (Prerequisites: MATH 1301, admission to Teacher Education)
- GEOG 1302 World Geography
- HIST 3316 World History Since 1500 AD (Prerequisite: Junior standing)

Select 3 SCH from the following two courses:

- ECON 2301 Principles of Economics I (Prerequisite: MATH 1301 or MATH 1310)
- ECON 2302 Principles of Economics II (Prerequisite: MATH 1301 or MATH 1310)
- SOSE 3306 Culture of the Urban School (Prerequisite: Introductory course in social sciences)
- SOSE 3320 Assessment and Evaluation of Children (Prerequisites: PSY 1303)

Select 9 SCH from the following Spanish courses:

- SPAN 1401 Elementary Spanish I Or
- SPAN 2311 Spanish I for Native Speakers
- SPAN 1402 Elementary Spanish II Or
- SPAN 2312 Spanish II for Native Speakers
- SPAN 2301 Intermediate Spanish I (Prerequisite: SPAN 1402, SPAN 1412 or equivalent)
- SPAN 2302 Intermediate Spanish II (Prerequisite: SPAN 2301 or equivalent)
- SPAN 3301 Advanced Spanish Grammar and Composition (SPAN 2302 or placement by examination)

- SPAN 4310 Spanish Linguistics (Prerequisite: SPAN 3301 or Approval of Chair)
- ETC 3301 Educational Technology (Prerequisite: CS 1305 or CIS 1301, or demonstrated competencies)
- PED 3314 Children's Literature in Spanish (Prerequisite: admission to Teacher Education)

Professional Development and Field-based Courses

The Professional Development courses require concurrent enrollment in specific field-based blocks of courses. Fifteen clock-hours per week are required for Blocks I and II. Block III represents a full-semester, full-day student teaching experience. In order to successfully complete each block, students must demonstrate mastery of the content by passing a comprehensive Block Exam at the end of Blocks I and II. Admission to these blocks is approved by the advisor/coordinator of the Urban Education Department.

Block I

(Prerequisites: admission to Teacher Education, READ 3305. Additional Prerequisite and/or Concurrent Enrollment: SOSE 3306, ETC 3301)

- EED 3311 Teaching Social Studies in the Elementary Classroom
- EED 3316 Understanding the Adolescent Learner and Environment
- READ 3312 Reading Curriculum, Methods, and Assessment in ESL 4-8

Block II

(Prerequisites: Block I, Passing Score on Block I Exam, MATH 3321, and MATH 3322)

- EED 3312 Effective Teaching Strategies in Mathematics Education
- EED 3315 Effective Teaching Strategies in Science Education
- READ 4307 Diagnostic Instruction of Reading in the ESL Classroom 4-8

Block III

(Prerequisites: Block II, Passing Score on Block II Exam)

- EED 4302 Student Teaching in the Middle-School Classroom
- EED 4303 Student Teaching in the Bilingual/ESL Classroom
- SOSE 4303 Current Issues in Urban Teaching

Total: 138 SCH

Fourth–Eighth Grade Language Arts/Social Studies Specialist (132-137 SCH)

Common Core Requirements

See listing under Common Core Requirements on page 24 of this Catalog. Students who have not yet completed their history requirement in the core are urged to fulfill 3 SCH of the requirement by taking HIST 2309 (Ethnic Minorities in American History). In fulfillment of the Social/Behavioral Science requirement, PSY 1303 (Introduction to Psychology) or SOC 1303 (Principles of Sociology) is strongly recommended.

Academic Major and Non-Field-based Courses

These courses are preliminary requirements for the degree and are in addition to the core curriculum. These courses fulfill the Academic Major Requirements and other courses that are not field-based for students in the Fourth–Eighth Grade Language Arts/Social Studies Specialist program.

- READ 3305 Foundations of Literacy Development and Instruction EC-8
- READ 3309 Teaching Reading in the Content Area 4-8 (Prerequisite: READ 3305)
- ENG 3351 Children’s Literature (Prerequisite: 3 SCH of literature)
- ENG 3355 Young Adult Literature
- ENG 3318 Advanced English Grammar for Writers (Prerequisite: ENG 1302, junior standing)
- ENG 3305 Essay Writing (Prerequisite: ENG 1302, junior standing)
- ENG 3306 Introduction to Literary Theory (Prerequisite: 3 SCH of literature)

Select 3 SCH:

- ENG 3319 Introduction to the Study of Language (Prerequisite: ENG1302, junior standing)
- ENG 3320 History of the English Language (Prerequisite: ENG 1302, junior standing)
- GEOG 1302 World Geography
- HIST 3316 World History since 1500 A.D. (Prerequisite: Junior standing)

Select 3 SCH:

- HIST 2303 Texas History (Prerequisite or Concurrent Enrollment: ENG 1301)
- HIST 3312 Readings in Texas History (Prerequisites: Junior standing and 3 SCH in history)
- POLS 3309 Texas Politics (Prerequisites: POLS 2303, POLS 2304, junior standing)
- POLS 3302 Public Policy Analysis (Prerequisites: POLS 2303, POLS 2304, junior standing)

Select 3 SCH:

- SOC 1303 Principles of Sociology (Prerequisite or Concurrent Enrollment: ENG 1301)
- PSY 1303 General Psychology (Prerequisite or Concurrent Enrollment: ENG 1301)

Select 3 SCH:

- ECON 2301 Principles of Economics I (Prerequisites: MATH 1301 or MATH 1310)
- ECON 2302 Principles of Economics II (Prerequisites: MATH 1301 or MATH 1310)

Select 3 SCH:

- SOC 3304 Minorities in America (Prerequisites: SOC 1303, junior standing)
- SOC 3306 Social Inequality (Prerequisites: SOC 1303, junior standing)
- SOC 4305 Urban Sociology (Prerequisites: SOC 1303, 3 additional SCH in sociology, junior standing)

Select 3 SCH:

- SOC 4301 Political Sociology (Prerequisites: SOC 1303, 3 additional SCH in sociology, junior standing)
- POLS 3310 American Legislatures (Prerequisites: POLS 2303, POLS 2304, junior standing)

- POLS 4306 Women and Politics (Prerequisites: POLS 2303, POLS 2304, junior standing)
- SOSE 3306 Culture of the Urban School SOSE 3320 Assessment and Evaluation of Children
- ETC 3301 Educational Technology (Prerequisite: CS 1305 or CIS 1301, or demonstrated competencies)
- SPAN 3–8 SCH (depending upon placement)

Professional Development and Field-based Courses

The Professional Development courses require concurrent enrollment in specific field-based blocks of courses. Fifteen clock-hours per week are required for Blocks I and II. Block III represents a full-semester, full-day student teaching experience. In order to successfully complete each block, students must demonstrate mastery of the content by passing a comprehensive Block Exam at the end of Blocks I and II. Admission to these blocks is approved by the advisor/coordinator of the Urban Education Department.

Block I

(Prerequisites: admission to Teacher Education, READ 3305. Additional Prerequisite and/or Concurrent Enrollment: SOSE 3306, ETC 3301)

- EED 3316 Understanding the Adolescent Learner and Environment
- READ 3327 Language Arts Instruction 4-8
- READ 3304 Reading Curriculum, Methods, and Assessment 4-8

Block II

(Prerequisites: Block I, Passing Score on Block I Exam. Additional Prerequisite or Concurrent Enrollment: SOSE 3320)

- EED 3311 Teaching Social Studies in Elementary Classroom
- EED 4320 Advanced Processes for Teaching Writing in the Middle Grades
- READ 4304 Diagnostic Instruction of Reading 4-8

Block III

- (Prerequisites: Block II, Passing Score on Block II Exam)
- EED 4301 Student Teaching in the Elementary Classroom
- EED 4302 Student Teaching in the Middle School Classroom
- SOSE 4303 Current Issues in Urban Teaching

Total: 132-137 SCH

Secondary Education

Maria Bhattacharjee, EdD, Coordinator
Room 601-South, 713-221-8906

Students seeking secondary certification with their undergraduate degree will select from the following:

Bachelor of Science in Biological and Physical Sciences with Life-Earth Science Certification

Bachelor of Science in Biological and Physical Sciences with Physical Science Certification

Any two of the above science teaching fields may be combined for certification and a bachelor’s degree in Biological and Physical Sciences.

Bachelor of Science in Biological and Physical Sciences with Composite Science certification, including teaching fields in biology, chemistry, geology and physics

Bachelor of Science in Social Sciences with Composite Social Studies certification, including teaching fields in government, history, geography, and economics

Bachelor of Arts in English with English Certification

Students seeking secondary certification must be advised in their program by the Department of Urban Education, and they should also consult an advisor in the department offering the degree major for degree-specific assistance. Formal admission to Teacher Education through the Urban Education Department requires the following: 2.5 overall grade point average, 2.5 GPA in teaching field, 60 hours of course work, successful completion of TASP (Reading: 230, Writing: 220, Math: 230).

Graduation requires successful completion of all course work including the three interdisciplinary blocks. In addition, certification requires acceptable scores on state-mandated ExCET examinations and recommendation from the Department of Urban Education. Urban Education will determine when a student is eligible to take the ExCET exam.

Teaching Field-English (Bachelor of Science in Professional Writing) (36-hour teaching field)

- ENG 3302 Business and Technical Report Writing
- ENG 3304 Advanced Business and Technical Report Writing
- ENG 3330 Production I
- ENG 3331 Production II
- ENG 4322 Editing, Rewriting and Copyreading

Twelve additional hours in writing and/or English language
Nine hours of upper level literature and/or theory
(Additional twelve hours in directly related fields in humanities and fine arts are found within the degree requirements.)

Teaching Field-Mathematics (Bachelor of Science in Applied Mathematics) (49-hour teaching field)

- MATH 1301 College Algebra
- MATH 1505 Introduction to Analysis
- MATH 2305 Discrete Mathematics
- MATH 2307 Linear Algebra
- MATH 2401 Calculus I
- MATH 2402 Calculus II
- MATH 2403 Calculus III
- MATH 3301 Differential Equations
- MATH 3302 Statistics
- MATH 3308 Numerical Methods
- MATH 4294 Senior Seminar

Three hours from:

- MATH 3306 Applied Modern Algebra or
- MATH 3307 Intermediate Analysis

Nine hours of senior-level mathematics courses by advisement from CMS department including a W-course or MATH 4395.

Teaching Field-Biology (Bachelor of Science in Biology-Biology Certification) (36-hour teaching field)

Basic Science and Math (39 Hours)

Computer Literacy-CS 1408 or 1410

Seven hours from Mathematics; MATH 1404 and 2300 or SOS 2307

- Biology 1301/1101
- Biology 1302/1102
- Microbiology 2305/2105
- Chemistry 1307/1107
- Chemistry 1308/1108
- Physics 1307/1107
- Physics 1308/1108

Upper Level Science (31-34 Hours)

- Chemistry 3301/3201
- Chemistry 3302/3202
- Chemistry 4304/4104
- Biology 3303/3103

Three hours from BIOL 4320, 4325, 4230, 4330 or 4390

Three hours from BIOL 3310/3110, 3330/3130, 3340/3140, or 4390

Six hours from BIOL 3304/3104, 3305/3105, 3320/3120, 4303, 4310/4110, 4313/4113, or 4390

Three hours from BIOL 3301, 4260, 4340, 4350, 4360, or 4390

Bachelor of Science in Chemistry-Chemistry Certification

Basic Science and Math (44 Hours)

Computer Literacy-CS 1408 or 1410

- Math 1404
- Math 2401
- Math 2402
- Math 2403
- Biology 1301/1101
- Biology 1302/1102
- Chemistry 1307/1107
- Chemistry 1308/1108
- Physics 1307/1107
- Physics 1308/1108

Upper Level Science (29 Hours)

- Chemistry 3301/3201
- Chemistry 3302/3202
- Chemistry 3310/3110
- Chemistry 3320
- Chemistry 3330/3130
- Chemistry 4340/4140

Four hours of 4000-level electives in chemistry

Bachelor of Science in Biological and Physical Sciences

Life-Earth Science Certification

Basic Science and Math (44 Hours)

Computer Literacy-CS 1408 or 1410

- Math 1404
- Biology 1301/1101
- Biology 1302/1102
- Chemistry 1307/1107
- Chemistry 1308/1108

Geology 1305/1105
Geology 1306/1106
Geology 1309
Four hours of Chemistry electives

Upper Level Science (22 Hours)

Biology 3305/3105 or 3320/3120
Biology 4320
Biology 4360
Geology 3411

Five hours of Biology and/or Geology electives

Bachelor of Science in Biological and Physical Sciences

Physical Science Certification

Basic Science and Math (39 Hours)

Computer Literacy-CS 1408 or 1410
Math 1404
Biology 1301/1101
Biology 1302/1102
Chemistry 1307/1107
Chemistry 1308/1108
Physics 1307/1107
Physics 1308/1108
Geology 1305/1105

Upper Level Science (25 Hours)

Chemistry 3301/3201
Chemistry 3310/3110
Chemistry 4340
Chemistry 4362
Chemistry 4362
Six hours of Chemistry and/or Physics electives
Four hours of Biology electives

Any two of the above science teaching fields may be combined for certification and a Bachelor's Degree in Biological and Physical Sciences.

**Teaching Field-Science Composite with certification in Biology, Chemistry, Geology, and Physics
(Bachelor of Science in Biological and Physical Sciences)
(56-hour teaching field)**

Bachelor of Science in Biological and Physical Sciences Science Composite Certification (Biology, Chemistry, Physics, Geology)

Basic Science and Math (40 Hours)

Computer Literacy-CS 1408 or 1410
Math 1404
Biology 1301/1101
Biology 1302/1102
Chemistry 1307/1107
Chemistry 1308/1108
Geology 1305/1105
Geology 1306/1106
Physics 1307/1107
Physics 1308/1108

Upper Level Science (24 Hours)

Six hours of Biology and/or Chemistry 4000-level lecture electives
Eighteen hours of Science electives*
(must include at least 3 hrs. Geology)

**Electives should be chosen to give a total of 12 hours in at least one area of science.*

Teaching Field-Social Studies with certification in government, history, geography and economics (48-hour teaching field)

History I (HIST 1305, 1306, 2303 or 2309)
History II (HIST 1305, 1306, 2303 or 2309)
Political Science 2303
Political Science 2304
9 hours of upper level history with advisor approval
9 hours of upper level political science with advisor approval
Geography 1301
Geography 1302
Economics 2301
Economics 2302
3 hours from POL 4390, HIST 3399, or HIST 4309, SOS 4301

Teaching Field-English (Bachelor of Arts in English) (36-hour teaching field)

Sophomore Literature 23XX
**3 hours of sophomore literature in sequence with core*
English 3311
English 3312
English 3313
6 hours from ENG 3309, 4305, 3316, 3317, 3319, 3320
21 hours of upper level literature or theory with advisor approval

Professional Development Sequence (28 hours)

Courses in the professional development sequence must be taken as a block of courses. These courses will not be offered as individual courses. These blocks will be offered at various times to accommodate student schedules. Blocks I and II require 15 clock-hours weekly for a semester, and Block III represents a full-semester, full-day student teaching experience. In order to successfully complete each block, students must demonstrate mastery of the content by passing a comprehensive Block Exam after Block I and Block II. Admission to these blocks is by approval of the advisor/coordinator of the Urban Education Department.

Interdisciplinary Block I (10 hours)

SED 3301	Understanding the Learner in the Secondary School
SED 3311	Curriculum Foundations for Teaching in the Urban Secondary School
READ 3311	Teaching Reading in the Secondary School Content Area
CS 1105	Technology in Education Lab

Interdisciplinary Block II (9 hours)

SED 3302	Enhancing Student Achievement in the Secondary School
SED 3312	Curriculum in the Secondary School
SOSE 3321	Assessment and Evaluation in the Classroom

Interdisciplinary Block III (9 hours)

- SOSE 4303* Current Issues in Urban Teaching
- SED 4301 Student Teaching in the Secondary School
- SED 4302 Student Teaching in the Secondary School

Post-baccalaureate Teacher Certification

Students who possess a baccalaureate degree may obtain certification through a deficiency plan. Certification is available in elementary, secondary and bilingual education.

A deficiency plan sponsored by the University of Houston-Downtown requires a minimum of 27 semester credit hours to be taken after the date of the student's bachelor's degree. All courses taken in fulfillment of the deficiency plan are to be taken at UHD unless the student has written permission in the form of a waiver from the Office of the Dean of Humanities and Social Sciences. Students enrolled in the Fort Bend Multi-Institutional Teaching Center may consider courses taken at the UHS at Fort Bend sites as "at UHD."

Master of Arts in Teaching

Major in Elementary Education, Bilingual Education, Secondary Education, and Curriculum & Instruction.

(See Academic Programs—Graduate, pages 76 to 77)

Sciences and Technology

COLLEGE OF SCIENCES AND TECHNOLOGY

George Pincus, PhD, PE, Dean
Kenneth Oberhoff, PhD, Assistant Dean
Room 723-North, 713-221-8019

The College of Sciences and Technology provides intellectual discipline and academic experiences essential to a sound education. It offers degrees to prepare students to enter professional schools, technical and scientific careers, graduate study and research. The college offers undergraduate courses and programs in the Biological and Physical Sciences, Mathematical and Computer Sciences, and Engineering Technology. The degree programs offer opportunities for specialization as well as breadth.

The College of Sciences and Technology places the highest emphasis on quality instruction throughout its programs. Bringing the leading edge of science and technology into the classroom is a major goal that the faculty accomplishes by remaining current and active in their fields of specialization. The recently formed UHD Scholars Academy is designed to encourage more students to pursue and complete undergraduate degree programs in computer science, engineering/engineering technology, mathematics, and the natural sciences.

The College of Sciences and Technology also offers its students rare opportunities for undergraduate-level research. Resident research centers are: the Center for Applied Polymer Science Research, created in 1994 to provide undergraduate students at UHD with the opportunity to participate directly in basic and applied polymer research projects that are of academic and industrial significance, and the Center for Computational Sciences and Advanced Distributed Simulation, whose mission is to formally assemble a human resource base in the field, per-

form research that supports funded activities, develop software and investigate new technologies which respond to funding agency needs. Summer research assistantships are available for qualified students.

The UHD Scholars Academy

Coordinator: **Phyllis Griffard**, PhD
Room 740-South, 713 221-8471

The Scholars Academy is a new, exciting and innovative program at UHD designed for students who want to major in Computer Science, Mathematics, Engineering/Engineering Technology, and all areas of Natural Science. This competitive program is funded by the National Science Foundation, NASA, Office of Naval Research, UHD, U.S. Army Research Office and the U.S. Department of Agriculture. Academy Scholarships vary from \$2,500 to \$5,000 per academic year with additional summer stipends available for research participation. Students applying for admission to the Academy must be graduates of a college-preparatory high school curriculum; have a minimum GPA of 3.0 in mathematics and science; have minimum SAT Math and Verbal scores of 450 each or TASP math, reading and writing component scores of 250 each; and be enrolled as full-time students majoring in one of the degree programs in the College of Sciences and Technology.

Programs of Study

The College of Sciences and Technology offers degree programs leading to:

Bachelor of Science with majors in:

- Applied Mathematics
- Applied Microbiology
- Applied Physics
- Biological and Physical Sciences
- Biology
- Biotechnology
- Chemistry
- Computer Science
- Industrial Chemistry
- Quantitative Methods

Bachelor of Science in Engineering Technology with majors in:

- Control and Instrumentation Electronics Design*
- Safety and Fire
- Process and Piping Design*
- Structural Analysis and Design*

**Accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (111 Market Place, Suite 1050, Baltimore, MD 21202, Phone: 4210-374-7700, Email: accreditation@abet.org, http://www.abet.org)*

General Requirements

Prerequisites

Registration for any course offered by the College of Sciences and Technology that has a course prerequisite must be authorized by an advisor. Students may be dropped from any class for which they lack a prerequisite or a co-requisite. A course that is a prerequisite or co-requisite for another course may not be dropped unless the student drops both courses.

Transfer Credits

The department chair in consultation with department faculty will determine the applicability of transfer credits into specific degree programs.

Computer and Mathematical Sciences Department

Kenneth Oberhoff, PhD, Chair
Room 705-South, 713-221-8012

FACULTY

Professors:	Aló, Barnes, Deeba, de Korvin, London, Rodriguez, Sirisaengtaksin
Associate Professors:	Becerra, Beheshti, Berrached Hodgess, Hu, Oberhoff, Turski, Vobach, Waller, Xie
Assistant Professors:	Anderson, DeLaViña, Simeonov, Tharp, Yoon, Zafiris
Lecturers:	Baker, Gad, Leveille, Nadler-Blumberg, Nakamura, Nguyen, Rosenthal-Simmons, Solomon
Emeriti:	Wood, Freeman
Academic Areas:	Computer science, mathematics, statistics

Programs of Study

Bachelor of Science with majors in:

- Computer Science
- Applied Mathematics
- Quantitative Methods

The degree programs in the Department of Computer and Mathematical Sciences provide students with an education responsive to the expanding uses of mathematical and computer techniques in business, government and industry. They are designed to permit students to select courses suited to a variety of interests and career goals. In achieving these objectives, advising plays an important role and consequently each student is assigned an advisor to assist with the student's schedule and career planning. The departmental Academic Screening Committee periodically evaluates academic progress by departmental majors, and students are advised appropriately.

Undergraduate training in the mathematical sciences has undergone substantial change during the past decade. This change has been driven by advances and developments in the computer field and the expanding use of computers in business, government and industry. Growing demands exist for professional applied mathematical scientists. These individuals should have a solid background in basic mathematics, an understanding of advanced programming languages as well as advanced software techniques, and a mastery of important techniques in applied mathematics such as operations research and statistics. Virtually all industrial, business and governmental environments need individuals with these qualifications.

Those whose interests lie in the administrative or managerial sciences are especially valuable in market forecasting, computer-based accounting systems, industrial control, management training programs and long-range planning decisions. Those with an interest in statistics are valuable to firms that deal with large amounts of data, such as banking and insurance companies, which need personnel to develop and maintain the associated software.

General Requirements for Graduation

The Department of Computer and Mathematical Sciences requires all candidates pursuing degrees in that department to have a grade of "C" or better in all Computer and Mathematical Sciences course work. Transfer grades of "D" are not accepted by the department.

Students are responsible for meeting the requirements for graduation. Therefore, students should become familiar with the requirements listed in this Catalog and their degree plan and should refer to them each time they plan their semester program of study.

The last 25 percent (32 hours) of the semester credit hours of course work toward the degree must be taken at the University of Houston-Downtown. A minimum of 18 semester hours of upper-level credit in CMS courses must be completed at UHD. Students who wish to take courses at another college or university, including any other campus of the University of Houston System, and apply the credits earned toward their degree must request approval through the department that administers their program before taking the course. Courses taken without such approval may not be counted toward the fulfillment of the degree requirements.

Bachelor of Science

Majors in Applied Mathematics, Computer Science, Quantitative Methods

Elias Deeba, DA, Coordinator
Room 705-South, 713-221-8012

The Computer and Mathematical Sciences degree programs are structured to develop written and oral communication skills, to provide broad-based studies in the mathematical sciences, and to provide a selection of advanced course work in computer science, applied mathematics and/or statistics.

One of the key aspects of the program is the Senior Seminar during which students are exposed to the world community as it relates to the major. In addition, students prepare a project proposal for their possible practicum. As a result of their performance in this course, students are invited to participate in the Senior Project or are assigned an appropriate writing course. The writing course requires prerequisites of MATH/CS 4294, COMM 1304 and ENG 3302.

All degree candidates must have a 2.0 GPA average and a grade of "C" or better in all Computer and Mathematical Sciences course work. Transfer grades of "D" are not accepted by the department. Any course substitutions or waivers must be approved by the department chair and dean.

Students who complete the requirements of the University College are accepted for advising into the Department of Computer and Mathematical Sciences after they complete MATH 1301 College Algebra with a grade of "C" or better.

To declare a major in the department, students must satisfactorily complete a prescribed set of courses (see departmental application for advising form) in the prospective degree plan. Students must achieve a grade of "C" or better in the prescribed courses

to be accepted as a major. Policies regarding the degree programs are printed on the program sheets distributed by the department. In compliance with the accrediting principles of the American Assembly of Collegiate Schools of Business, the business content of non-business programs is limited to no more than 25 percent of the hours prescribed for graduation.

Applied Mathematics Major

The curriculum is structured to prepare the student to develop and use analytical skills, to master mathematical techniques required in related fields of applications, and to enter the employment market with relevant and proficient mathematical tools for areas such as industrial mathematics, applied statistics, or computer analysis and programming for various types of applications. The degree requires a minimum of 128 semester credit hours.

General Education and Core Requirements (see page 24)

Additional General Education Requirements: Students majoring in applied mathematics are also required to take ENG 3302, COMM 1304 and CS 1410.

Eight hours of lab sciences are required and must be in the same natural science and be approved by the department: MATH 2305 satisfies the analytical skills requirement of the General Education program. The writing skills requirement may be met by taking ENG 3302 and one of the following W courses: MATH 4395; MATH 4306; MATH 4312; MATH 4301; MATH 4328.

Mathematical Sciences Requirements (44 hours)

MATH 2305, 2401, 2402, 2403, 2307, 3301, 3302, 3306, 3307, 3308, 4294. Nine hours of additional upper-level senior mathematical sciences courses other than MATH 3309, including a W course or MATH 4395.

Minor (18 approved hours minimum)

Any university-approved minor will satisfy this requirement.

Electives (18 hours to complete a minimum of 128 hours total)

Computer Science Major

The Computer Science program in the Department of Computer and Mathematical Sciences at UH-Downtown offers students a strong foundation in the fundamental concepts of computer science combined with sound practical training relevant to the common applications of computing in business and industry. The Bachelor of Science degree provides preparation for all career paths in computer science and information technology, including database systems, scientific computing and simulation, graphics, artificial intelligence, software engineering, and networking and telecommunications. By emphasizing broad-based studies including mathematics and science requirements, the student's choice of an approved university minor, and sustained development of writing and speaking proficiency, the degree furnishes students with the problem solving and communication skills that are in high demand in today's job market and graduate schools. Possessing many areas of expertise, the computer science faculty shares UH-D's commitment to quality teaching in a challenging yet personal and supportive learning environment. This commitment helps our majors compete successfully for positions involving the use and support of current computer applications, as well as for positions designing and building the computer applications of tomorrow.

General Education and Core Requirements (see page 24)

Additional general education requirements for students majoring in Computer Science are ENG 3302 and COMM 1304.

Eight hours of lab sciences are required and must be in the same natural science and be approved by the department.

Math 2305 satisfies the analytical skills requirement of the General Education program. The writing skills requirement may be met by taking ENG 3302 and one of the following W courses: CS 4395; CS 4306; CS 4312; CS 4301; CS 4328.

Mathematics Requirements (20 hours)

MATH 2305, 2401, 2402, 2307, 3301 and 3302.

Computer Science Requirements (44 hours)

CS 1410, 2310, 3304, 3306, 3401, 3402, 4294, 4303, 4315, and 4395 (or approved W course). In addition, 12 approved hours of upper-level Computer Science courses must be taken.

Science Requirement (4 hours)

Four hours of science in addition to the general education requirements above. These hours may be counted toward the minor requirements.

Minor (18 approved hours minimum)

Any approved university minor will satisfy this requirement.

Electives (sufficient hours to complete a minimum of 128 hours total)

Quantitative Methods Major

The curriculum in Quantitative Methods is structured to allow students to be employed in areas requiring the tools of discrete mathematics and statistics. The advent of high-speed digital computers and technological advances being made in this area have encouraged the development of, and have resulted in, important advances that constitute significant mathematical tools for such areas as the life sciences, administrative/managerial sciences and the social/behavioral sciences. The major in Quantitative Methods, through its core of courses, emphasizes those tools of discrete mathematics that have impacted greatly the development and advancement of areas such as those mentioned above. Consequently, this major complements the major in Computer Science and Applied Mathematics and will be selected by students desiring a quantitatively oriented program that emphasizes statistics and the decision sciences.

General Education and Core Requirements (see page 24)

Additional general education requirements for students majoring in quantitative methods are: ENG 3302; PHIL 2303; COMM 1304.

Eight hours of lab sciences are required and must be in the same natural science and approved by the department.

MATH 2305 satisfies the analytical skills requirement of the General Education program. The writing skills requirement may be met by taking ENG 3302 and one of the following: MATH 4395; MATH 4306; MATH 4312; MATH 4301; MATH 4328.

Mathematical Sciences Requirements (39 hours)

CS 1408 or CS 1410, MATH 1305, 1306, 2305, 2307, 3309, 3310, 4294, 4395 (or approved W course) and four courses chosen from MATH 4300, 4303, 4307, 4309, 4310, 4311.

The sequence 2401, 2402, 3302 may be substituted for 1305, 1306, 3309, 3310.

Minor (18 hours minimum)

Any university-approved minor will satisfy this requirement.

Electives (27 hours to complete a minimum of 128 hours)

Minors Programs

Minor in Applied Mathematics (21 hours minimum)

Required Courses

MATH 2401, MATH 2402, MATH 2403, MATH 2307. Six hours required from: MATH 3301, MATH 3302, MATH 3306, MATH 3307, MATH 3308, MATH 4301, MATH 4302, MATH 4304, and MATH 4305. The six upper level hours must be completed at UH-D. All hours counted toward the minor must be "C" or better.

Minor in Computer Science (19 hours minimum)

Required Courses:

CS 1410; CS 2310; six hours beyond CS 1305 and six hours of upper-level Computer Science. The six upper level hours must be completed at UH-D. All hours counted toward the minor must be "C" or better.

Minor in Statistics (18 hours minimum)

Required Courses:

The sequence MATH 1305, MATH 1306, MATH 3309 or the sequence MATH 2401, MATH 2402, MATH 3302; and nine hours required from: MATH 3310, MATH 4300, MATH 4306, MATH 4307, MATH 4309 and MATH 4310. Six upper level hours must be completed at UH-D. All hours counted toward the minor must be "C" or better.

Minor in Decision Sciences (18 hours minimum)

Required Courses:

The sequence MATH 1305, MATH 1306, MATH 3309 or the sequence MATH 2401, MATH 2402, MATH 3302; and 9 hours required from: MATH 4303, MATH 4306, MATH 4307 and MATH 4311. Six upper level hours must be completed at UH-D. All hours counted toward the minor must be "C" or better.

For all minors:

- No D accepted toward credit to minor
- At least 6 hours of upper-level course work in the minor must be completed at the University of Houston-Downtown

Honors Program in the Computer and Mathematical Sciences

To enhance the educational opportunities and experiences of the academically talented students at UH-Downtown, the Department of Computer and Mathematical Sciences offers an Honors Program. The program is designed to challenge and motivate students to do more than the minimum required for a particular degree. Students who successfully complete this program will be designated as graduates of an Honors Program in the Department of Computer and Mathematical Sciences on their diploma and university transcript.

Admission Requirements:

Application to the department's Honors Program Admission and Review Committee

Completion of at least 60 semester credit hours of recognized university-level work

An overall GPA of at least 3.0 with a GPA of 3.25 or better in CMS courses

Completion of at least 16 semester credit hours in CMS courses, eight of which must have been taken at UH-Downtown.

Program Requirements:

Satisfy the requirements for one of the department's bachelor of Science degree programs

Complete at least two honors designated courses in addition to three hours of credit in Senior Honor Thesis. The Senior Thesis will be done under the supervision of an approved member of UH-D faculty and will be presented in both oral and written form to the CMS faculty.

Maintain a minimum GPA of 3.25 in all CMS courses including the required honors courses.

Maintain a GPA of 3.0 or better in all courses outside the CMS Department taken at UH-Downtown.

The department Honors Program Admissions and Review Committee must approve all honors designated courses and all projects proposed by students for their honors theses. Upper-level courses designated as Honors require at least 25 percent more in-depth study than that required of students taking the course without honors credit. The additional course requirements will vary depending on the course instructor.

Mathematics Certification Program

In addition to the degree program, the CMS Department offers in conjunction with the Urban Education Department, a bachelor of science in Applied Mathematics with mathematics certification.

Pi Mu Epsilon

The Department of Computer and Mathematical Sciences is privileged to have a chapter of the prestigious honorary mathematics society Pi Mu Epsilon. The name of our chapter is Texas Nu. The mission of the society is to encourage and promote mathematics. Each year the Pi Mu Epsilon coordinators invite students who have shown exceptional abilities in the mathematical sciences to join the chapter.

In addition, the Department of Computer and Mathematical Sciences is also privileged to have student chapters of the prestigious organizations: The Mathematical Association of America and the Association of Computing Machinery. Both chapters are extremely active.

Engineering Technology Department

Alberto Gomez-Rivas, PhD, PE, Chair
Room 738 North, 713-221-8089

FACULTY

Professors: Gomez-Rivas, Pincus
Associate Professors: Franz, Nandagopal, Feng
Assistant Professors: Groendyke, Sheinberg

Programs of Study

Bachelor of Science in Engineering Technology with majors in:

Control and Instrumentation Electronics Design Technology
Safety and Fire Engineering Technology
Process and Piping Design Technology
Structural Analysis and Design Technology

Mission and Objectives

The Engineering Technology Department strives to provide high quality engineering technology degree programs and unique curricula for students from diverse social, educational, and ethnic backgrounds. The department is committed to maintaining an educational environment in which students can significantly enhance their academic standing as well as their skills in computing, problem-solving, communication, and teamwork. With a strong sense of professionalism, students are trained to become successful individuals who are socially responsible and professionally competitive.

The Engineering Technology curricula reflect the demands and requirements of industries and businesses in the greater Houston area. The close partnerships forged between the department and local industries ensure that our academic programs are dynamic and up-to-date. Such partnerships also benefit graduates when they seek employment.

Our academic programs include solid foundation courses in the basic sciences, mathematics, and applied engineering together with a strong emphasis in computer applications. Courses in PC applications in engineering and PC facilities management are included in the curricula of all Engineering Technology programs to promote the philosophy of productivity. Design-oriented semester projects embedded in technological courses give students ample opportunities to gain practical experience, and to prepare themselves to be productive engineering technologists after graduation.

The Department provides an innovative teaching and learning environment. Classroom lecturing is typically combined with laboratory experiments and computer simulations. The degree programs aim to empower students with lifelong learning and continuous improvement capabilities. Members of the faculty are committed to providing extended support to students' learning activities both inside and outside the classroom. The faculty's open-door policy and flexible class scheduling accommodate the needs of working students. Our mentoring system ensures that each student receives individual consulting time. The existence within the Department of a number of student chapters of professional organizations promotes networking, career awareness and planning opportunities. Special scholarships are available to promote excellence in academics, service, and leadership.

Honor Societies

Texas Zeta Chapter of Tau Alpha Pi, National Honor Society for Engineering Technologies

Professional Institution

The Engineering Technology Department is the home of the Society of Piping Engineers and Designers (SPED).

Facilities

The modern laboratory facilities in the Engineering Technology Department provide students with ample opportunities for hands-on practice. The laboratories are:

- Process Piping Laboratory
- Structures and Soil Mechanics Laboratory (sponsored by NSF)
- GPS-GIS Laboratory
- Electronics Laboratories
- Process Control Laboratory

These labs are equipped with materials, equipment, instruments, PCs and computer networks, and various up-to-date design and application software tools that meet industrial standards.

Semester Projects

In order to fulfill the accreditation requirements of TAC of ABET, all courses in the Engineering Technology Department include semester projects with collaborative participation of all students working in teams. The projects include oral presentations, written reports, CADD drawings, and development of computer simulations. The purpose of the projects is to train students to work on real-industry problems in the team environment that they will encounter working in industry after graduation.

Advising

For information about requirements for admission to Engineering Technology degree programs, declaration of major, transferability of courses, and requirements for graduation, please contact the department office in Room 738-North, or phone 713-221-8089.

The minimum conditions which must be met by students before being accepted in an Engineering Technology degree program are: passing all sections of the TASP test, completing 30 hours of course credits that are applicable to the Engineering Technology degree programs, and being in good academic standing. Engineering Technology faculty will recommend courses and provide course sequence guidelines to ensure that students make smooth progress toward completion of degree requirements. Faculty members also provide information regarding career opportunities and other development opportunities.

When a student is accepted into an Engineering Technology degree program, the department prepares a computerized official degree plan and makes it available for review by the student. The student's degree plan serves as a basic advising document used by the department faculty. In order to facilitate advising during registration, students should bring an electronic copy of their degree plan.

Requirements for Graduation

The requirements for graduation with an Engineering Technology major comply with the UHD policy on graduation requirements. In addition, the students should complete all the requirements listed for the specific degree program. It is the students' responsibility to become familiar with the requirements

listed in this Catalog and in their degree plan, and the students should refer to them each time they plan their semester program of study.

Courses of Instruction

All courses of instruction are offered at least once each academic year, including summer. Careful planning is required in order for a student to complete a specific degree plan within shortest period of time.

Minor in Engineering Technology

The Engineering Technology minor is offered to provide specific engineering knowledge and skills to students pursuing degrees in other fields such as business, humanities, or the sciences, and also to enhance the employment prospects of students enrolled in non-technical majors. Laboratories associated with our courses give students hands-on skills in the use of up-to-date equipment, laboratory devices, and instruments. The minor can be customized to meet the needs of the student and to complement the student's academic background. Course requirements shall include 20 semester credit hours in Engineering Technology courses with a limit of 12 credit hours transferred from other institutions. Course grades in the Engineering Technology minor must be "C" or better. Credit for Field Experience cannot apply.

Sample Requirements

1. Sample for students pursuing the BBA, major in Purchasing & Materials Management:
ENGR 1401, ET 2401 or ENGR 1400, EET 1411 and EET 2431 or other courses chosen in consultation with Engineering Technology advisor.
2. Sample program for students pursuing the Bachelor of Science, major in Computer Science:
EET 1412, EET 2431, EET 2421 and EET 3435 and EET 3451 or other courses chosen in consultation with Engineering Technology advisor.

Control and Instrumentation Electronics Design Technology (127 hours)

Accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering Technology

Weining Feng, PhD, Coordinator
Room 708-North, 713-221-8591

The main focus of the Control and Instrumentation Electronics Design Technology degree program is the application of computer technology and modern electronics to industrial process control and instrumentation systems. As such, the program produces graduates who:

- have a sound foundation in the analysis, design, testing, and implementation of instrumentation and control systems;
- are proficient in applying their knowledge (in mathematics, sciences, and engineering), and standard tools, especially computer software and hardware tools, to technical problem solving;
- are all-around individuals with strong social skills, able to work in team environments, competent in communication and information presentation, and with a strong sense of professionalism;
- are committed to continuous improvement and lifelong learning.

Control and instrumentation specialists are among the most sought-after personnel in the Houston area due to the growing demand from process industries (petrochemical and oil refining), power companies, and energy industries. Control and instrumentation engineering technology has its basis in computer technology, electrical/electronics systems and communication systems. The broad technical background of control and instrumentation graduates opens up bright employment prospects, from process industries to telecommunications.

General Education Core Requirements

ENGR 1400	PC Applications in Engineering
ENG 1302	Composition II
HIST 1305	U.S. History to 1877
HIST 1306	U.S. History after 1877
MATH 2401	Calculus I
PHYS 1307/1107	General Physics I with Lab
PHYS 1308/1108	General Physics II with Lab
POLS 2303	U.S. Government I
POLS 2304	U.S. Government II
PSY 1303	General Psychology
COMM 1304	Introduction to Speech Communication
ENG 3302	Business and Technical Report Writing
Fine Arts	Fine Arts (three hours)

Literature (three hours, sophomore level or above)

Writing Proficiency Examination

Control and Instrumentation Electronics Design Technology Requirements

Lower Division

EET 1411	Electric Circuits with Lab
ENGR 2410	Analysis of Engineering Networks
EET 2421	Electronic Devices with Lab
EET 2431	Digital Logic Design
MATH 2402	Calculus II

Upper Division

ET 4323	Technology Seminar
ET3308	Materials Science
ENGR 3409	PC Facilities Management with Lab
EET 3432	Computer Architecture and Design with Lab
ENGR 3404	Digital Signal Processing with Lab
EET 3435	Fundamentals of Automation and Control
EET 3451	Instruments and Transducers with Lab
EET 3461	Analog and Digital Communications with Lab
ET 4323	Technology Seminar
EET 4335	Computer Networking
ENGR 3406	Process Control Systems
ENGR 3407	Industrial Robotics with Lab
EET 3334	Electrical Power Systems
ENGR 3302	Engineering Economics
ENGR 3410	Process Modeling and Simulation

Six (6) hours of electives selected in consultation with department advisors.

ENG 3302, ENGR 3410 and ET 4323 satisfy the W and S application course requirements of the General Education program.

Safety and Fire Engineering Technology (129 hours)

Edward R. Sheinberg, MME, Coordinator
Room 706-North, 713-221-8441

The main focus of the Safety and Fire Engineering Technology degree program is the application of engineering principles, including fire dynamics and fire codes, together with computer technology, to industrial safety, and the design of safe industrial facilities. As such, the program produces graduates who

- have a sound foundation in the analysis, design, testing, and implementation of fire protection systems and are proficient in applying their knowledge (in mathematics, sciences, and engineering) and standard tools, especially computer software and hardware tools, to technical problem solving;
- are all-around individuals with strong social skills, able to work in team environments, competent in communication and information presentation, and with a strong sense of professionalism;
- are committed to continuous improvement and lifelong learning.

Safety and fire specialists are among the most sought-after personnel in the Houston area due to the growing demand from process industries (petrochemical and oil refining), power companies, and the energy industry. Safety and Fire engineering technology has its basis in computer technology, thermodynamics, fluid mechanics, materials science and data communications. The broad technical background of safety and fire graduates opens up bright employment prospects, from process industries to the energy industry.

General Education Core Requirements

ENGR 1400 PC Applications in Engineering
ENG 1302 Composition II
HIST 1305 U.S. History to 1877
HIST 1306 U.S. History after 1877
MATH 2401 Calculus I
PHYS 1307/1107 General Physics I with Lab
PHYS 1308/1108 General Physics II with Lab
POLS 2303 U.S. Government I
POLS 2304 U.S. Government II
PSY 1303 General Psychology
COMM 1304 Introduction to Speech Communication
ENG 3302 Business and Technical Report Writing
Fine Arts Fine Arts (three hours)
Literature (three hours, sophomore level or above)
Writing Proficiency Examination

Safety and Fire Engineering Technology Requirements

Lower Division

CHEM 1307/1107 General Chemistry I with Lab
EET 1411 Electric Circuits with Lab
ENGR 2409 Engineering Mechanics with Lab
ENGR1402 Fire & Safety Hazard Recognition
ENGR1403 Fire Suppression & Detection Systems
ENGR 1404 Automatic Fire Suppression Systems
ENGR 1480 Occupational Safety Techniques
ENGR2407 Surveying with GIS-GPS
ENGR 2410 Analysis of Engineering Networks

Upper Division

ET 3307 Applied Thermodynamics
ET 3308 Materials Science
ENGR3311 Structural Analysis
ENGR 3308 Fluid Mechanics I
MGT 3301 Management of Organizations
ENGR 3302 Engineering Economics
ENGR 4370 Human Factors in Safety and Fire
ENGR 4410 Industrial Hygiene Instrumentation
ENGR 4420 Fire Dynamics
ENGR 4450 Industrial Safety
ENGR 4380 Security of Computing Systems
ET 4323 Technology Seminar

Career Electives (9 hours)

ENG 3302 and ET 4323 satisfy the W and S application course requirements of the General Education Program.

Process Piping Design (126 hours)

Accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology

N. S. Nandagopal, MS, Coordinator
Room 710-North, 221-8439

The main focus of the Process Piping Design degree program is the application of modern technology to design, layout, analysis, construction, operation, and maintenance of piping systems. As such, the program produces graduates who

- have a sound foundation in the analysis, design, construction, and operation of piping systems, including pipes, pumps, reactors and pressure vessels;
- are proficient in applying their knowledge (in mathematics, sciences, and engineering) and standard tools, especially computer software and hardware tools, to technical problem solving;
- are all-around individuals with strong social skills, able to work in team environments, competent in communication and information presentation, and with a strong sense of professionalism;
- are committed to continuous improvement and lifelong learning.

Process piping specialists are among the most sought-after personnel in the Houston area due to the growing demand from process industries (petrochemical and oil refineries), power companies, and energy industries. Process piping engineering technology has its basis in computer technology, materials science, thermodynamics, fluid flow, heat transfer, engineering mechanics, stress analysis, and plant layout. The broad technical background of process piping graduates opens up bright employment prospects in a variety of companies—chemical, petrochemical, off-shore, food, fabrication and testing.

The University of Houston-Downtown has the only Process Piping Design degree program in the United States.

General Education Core Requirements

ENGR 1400 PC Applications in Engineering
ENG 1302 Composition II
HIST 1305 U.S. History to 1877
HIST 1306 U.S. History after 1877
MATH 2401 Calculus I

PHYS 1307/1107 General Physics I with Lab
 PHYS 1308/1108 General Physics II with Lab
 POLS 2303 U.S. Government I
 POLS 2304 U.S. Government II
 PSY 1303 General Psychology
 COMM 1304 Introduction to Speech Communication
 ENG 3302 Business and Technical Report Writing
 ENG 23xx Literature
 Fine Arts Fine Arts (three hours)
 Literature (three hours, sophomore level or above)
 Writing Proficiency Examination

Process Piping Design Requirements

Lower Division

CHEM 1307/1107 General Chemistry I with Lab
 ENGR 1401 Engineering Graphics I
 EET 1411 Electric Circuits with Lab
 ENGR 2409 Engineering Mechanics with Lab
 ET 2401 Piping Drafting I
 ET 2402 Piping Drafting II
 MATH 2402 Calculus II

Upper Division

ENGR 3302 Engineering Economics
 ENGR 3308 Fluid Mechanics I
 ET 3401 Process Piping Design I
 ET 3307 Applied Thermodynamics
 ET 3308 Materials Science
 ET 4301 Piping Models
 ET 4315 Piping Stress Analysis
 ET 4323 Technology Seminar
 ET 4307 Fluid Mechanics II with Lab
 ET 4311 Heat-Power Applications
 ET 4313 Applied Heat Transfer
 ENGR 4340 Senior Project in Piping Design

Electives (9 hours)

Nine (9) hours of career electives selected from the list approved by the department.

ENG 3302, ET 3401, and ET 4323 satisfy the W and S application course requirements of the General Education program.

Structural Analysis and Design (128 hours)

Accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology

Alberto Gomez-Rivas, PhD, Coordinator
 Room 713-North, 713-221-8581

The main focus of our degree program is the application of computer technology, modern materials, and construction techniques to the design of structures. As such, the program produces graduates who

- have a sound foundation in the analysis, design, testing, and construction of civil structures (bridges, buildings, and communication towers);
- are proficient in applying their knowledge (in mathematics, sciences, and engineering) and standard tools, especially computer software and hardware tools, to technical problem solving;

- are all-around individuals with strong social skills, able to work in team environments, competent in communication and information presentation, and with a strong sense of professionalism;
- are committed to continuous improvement and lifelong learning.

Structural analysis specialists are among the most sought-after personnel in the Houston area due to the growing demand from construction industries, power companies, transportation systems and energy industries. Structural analysis and design technology has its basis in computer technology, construction systems, and materials science. The broad technical background of structural analysis graduates opens up bright employment prospects, from construction industries to telecommunications and transportation systems.

General Education Core Requirements

ENGR 1400 PC Applications in Engineering
 ENG 1302 Composition II
 HIST 1305 U.S. History to 1877
 HIST 1306 U.S. History after 1877
 MATH 2401 Calculus I
 PHYS 1307/1107 General Physics I with Lab
 PHYS 1308/1108 General Physics II with Lab
 POLS 2303 U.S. Government I
 POLS 2304 U.S. Government II
 COMM 1304 Introduction to Speech Communication
 ENG 3302 Business and Technical Report Writing
 PSY 1303 General Psychology
 Fine Arts Fine Arts (three hours)

Literature (three hours, sophomore level or above)
 Writing Proficiency Examination

Structural Analysis and Design Requirements

Lower Division

CHEM 1307/1107 General Chemistry with Lab
 ENGR 1401 Engineering Graphics I
 EET 1411 Electric Circuits with Lab
 ENGR 2304 Computer-Aided Drafting and Design I
 ENGR 2409 Engineering Mechanics with Lab
 ENGR 2407 Surveying
 MATH 2307 Linear Algebra

Upper Division

ENGR 3302 Engineering Economics
 ENGR 3311 Structural Analysis I
 ENGR 3312 Reinforced Concrete Design
 ET 3320 Modern Concrete Technology
 ET 3321 Soil Mechanics
 ET 3325 3D Computer Modeling, Rendering and Animation
 ET 3322 Finite Element Analysis of Structures
 ET 4320 Prestressed Concrete
 ET 4321 Structural Steel Design
 ET 4322 Foundation Design
 ET 4323 Technology Seminar
 ET 4324 Senior Concrete Project
 ET 4325 Senior Steel Project
 ENGR 3308 Material Science
 ENGR 3409 PC Facilities Management

Electives (9 hours)

Nine (9) hours of career electives selected from the list approved by the department.

ENGR 3311, ENG 3302, and ET 4323 satisfy the W and S application course requirements of the General Education program.

Natural Sciences Department

Larry Spears, PhD, Chair
Room 813-North, 713-221-8015

FACULTY

Professors:	Capeheart, Hoffmann-Pinther, Loftin, Merrill, Spears
Associate Professors:	Abramowitz, Christmas, Driy, Flosi, Montgomery
Assistant Professors:	Derrick, Farnsworth, Gulati, Lyons, McCullough, Morano, Morris-Smith, Slough, Uzman
Lecturer:	Griffard
Emeriti:	Avenoso, Fefer, Price, Sherman, Umland
Academic Areas:	biology, chemistry, geology, microbiology, physics
Pre-Professional Areas:	dental hygiene, dentistry, medical technology, medicine, nutrition and dietetics, nursing, occupational therapy, optometry, pharmacy, physical therapy, physician's assistant, and veterinary medicine
Specialized Areas:	Environmental science and science education (see list of certification areas below).

Programs of Study

Bachelor of Science with majors in:

- Applied Microbiology
- Applied Physics
- Biology
- Biological and Physical Sciences
- Biotechnology
- Chemistry
- Industrial Chemistry

The Department of Natural Sciences offers lower and upper-level courses in the academic and specialized areas listed above. In addition, it provides courses that serve a number of pre-professional areas. Students interested in biology may pursue the Bachelor of Science in Biology or Biotechnology. Students interested in chemistry may pursue the Bachelor of Science program in Chemistry or Industrial Chemistry. Students interested in microbiology may pursue the Bachelor of Science in Applied Microbiology. Students who are interested in physics may pursue the Bachelor of Science in Applied Physics. Students interested in environmental science or science education may seek the Bachelor of Science degree in the Biological and Physical Sciences.

Affiliation Agreement between UHD and UTHSC at Houston Graduate School of Biomedical Sciences.

The University of Houston-Downtown and The University of Texas Health Science Center (UTHSC) at Houston Graduate

School of Biomedical Sciences have a formal joint program designed to increase the number of students who pursue graduate degrees in the biomedical sciences. This exciting and successful program allows UHD science majors to earn undergraduate degree credit while pursuing advanced-level research in participating laboratories of the Graduate School of Biomedical Sciences. In addition, this agreement fosters the exchange of faculty for seminars, guest lecturing and joint research projects.

Declaring a Major and Advising

Students who wish to officially declare a major in an area of natural science and be accepted into a degree program in the Department of Natural Sciences should have passed all portions of TASP, have credit for 30 or more hours of university-level course work with a minimum grade point average of 2.0, and be cleared by University College (Room 655-South). All students accepted into the department will be assigned an advisor. The department's Health Professions Advisory Committee will coordinate the advising of students interested in a particular health professions area. Students who wish to declare a major in science or one of the health-related areas should go to the department office in Room 813-North.

Drop Policy for Science Courses with Prerequisites/Co-requisites

Students must follow stated prerequisite/co-requisite listings for natural science courses. A student can drop a co-requisite course after mid-semester up to and including the last day to drop the course. The student would receive a W for the dropped course. The department will not allow graduation credit for a science course in which the student has not satisfactorily completed any listed co-requisite.

General Requirements for Graduation

The Department of Natural Sciences has the following general requirements for all science degrees: (1) Students must have a minimum GPA of 2.0 in all science courses that could apply toward the degree; (2) The only transfer credit courses with grades of D that apply toward a degree are first-year non-mathematics and non-science courses; (3) No more than three credit hours with a grade of D in upper-level science courses may be applied toward the degree; (4) Students must have at least 18 credit hours of upper-level science from UH-Downtown with a minimum GPA of 2.0 to apply toward the degree; and (5) Credit for science courses that are more than 10 years old must be approved by the department before they can be applied toward a degree.

Students are responsible for meeting the requirements for graduation. Therefore, students should become familiar with the requirements listed in their degree plan and should refer to them each time they plan their semester program of study.

The last 25 percent of the semester credit hours of work toward the degree must be taken at the University of Houston-Downtown. Students who wish to take courses at another college or university, including any other campus of the UH System, and apply the credits earned toward their degrees must request approval through the Natural Sciences Department. Courses taken without such approval may not be counted toward the fulfillment of degree requirements.

Requirements for Minors in Science

Bioinformatics: 25 hours; BIOL 3303/3103, MATH 3302, plus one course from: BIOL 3302/3103, BIOL 4303, BIOL 4320, BIOL 4330, CHEM 4340/4140. Select at least two courses from: CS/MATH 3308, CS/MATH 3330, CS/MATH 4306, CS/MATH 4328, CS/MATH 4331, CS/MATH 4399. Select at least two courses from: MATH 3301, MATH 3315, MATH 4304, MATH 4307.

Biology:	22 hours of biology with only eight hours at the lower level; must include a minimum of four three-contact hour laboratory courses.
Chemistry:	21 hours of chemistry; must include CHEM 1307/1107, 1308/1108, 3301/3201 and eight hours of upper-level chemistry.
Geology:	20 hours; must include GEOL 1305/1105, 1306/1106 and 12 hours of upper-level courses in geology.
Microbiology:	20 hours; must include BIOL 1301/1101, 1302/1102, MBIO 2305/2105 and eight hours of upper-level microbiology.
Physics:	20 hours; must include PHYS 2401/2101, 2402/2102 and three upper-level courses in physics.

For the above, no upper-level courses with grades of D will be counted; no transfer credits with grades of D can be applied; must have a minimum GPA of 2.0 in the applied courses; and the upper-level courses must be taken at UH-Downtown. Credit for directed studies, field experiences, honors thesis and undergraduate research cannot apply.

Science Certification Programs

Scott Slough, EdD, Coordinator
Room 724A-North, 713-221-8954

The Department of Natural Sciences, in cooperation with the Department of Urban Education, offers a full array of science certification programs for secondary-level education. These programs satisfy the requirements established by the Commission on Standards for the Teaching Professions of the state of Texas. Detailed curriculum guides are available for each program in Room 813-North.

Option I Programs (single discipline with a supporting field)

Biology-Chemistry as supporting field
Life-Earth Science-Chemistry as supporting field
Physical Science-Biology as supporting field
Chemistry-Mathematics as supporting field

Option II Programs (two disciplines)

Biology and Chemistry
Biology and Earth Science
Biology and Physical Science
Chemistry and Earth Science
Chemistry and Physical Science
Life-Earth Science and Physical Science

Option III Program

Science (all disciplines).

Requirements for all of the above programs may be completed under one of the degree programs available in the department.

Honors Program in the Natural Sciences

Jeff Flosi, PhD, Coordinator
Room 820-North, 713-221-8171

In order to enhance the educational opportunities and experiences of academically talented students at UH-Downtown, the Department of Natural Sciences offers an Honors Program in the Natural Sciences. The program is designed to challenge and motivate students to do more than the minimum required for a particular degree in science. Students who successfully complete this program will be designated as graduates of an Honors Program in the Department of Natural Sciences on their university transcript.

Admission Requirements:

- Application to the department's Honors Program Admissions and Review Committee
- Completion of at least 60 semester credit hours of recognized university-level work
- An overall GPA of at least 3.0 with a GPA of 3.25 or better in science courses
- Completion of at least 16 semester credit hours in science, eight of which must have been taken at UHD

Program Requirements:

- Satisfy the requirements for one of the department's Bachelor of Science degree programs
- Complete at least two honors-designated courses in addition to six hours credit in BIOL, CHEM, GEOL, MBIO, or PHYS 4399 Senior Honors Thesis. The two honors courses may not be taken during the same semester. The senior thesis will be done under the supervision of an approved member of the UHD faculty or under a scientist at an affiliated research institution or laboratory and will be presented in both oral and written form to the natural sciences faculty
- Maintain a minimum GPA of 3.25 in all science courses including the required honors courses
- Maintain a GPA of 3.0 or better in all non-science courses taken at UH-Downtown

The departmental Honors Program Admissions and Review Committee must approve all honors designated courses and all projects proposed by students for their honors theses. Upper-level courses designated as Honors require at least 25 percent more in-depth study than that required of students taking the course without honors credit. The additional course requirements will vary depending on the course and instructor.

Bachelor of Science

Major in Applied Microbiology

Joan Abramowitz, PhD, Coordinator
Room 807-North, 713-221-8486

The Bachelor of Science degree in Applied Microbiology will prepare the student to be a productive team member in a variety of settings. A graduate will be prepared for positions in microbially related industry, research and clinical laboratories in the health care industry. In addition to being qualified for immediate industrial employment, a student with this background can also continue with graduate studies in such areas as

biochemistry, biotechnology, dentistry, medicine, microbiology, molecular biology and public health microbiology.

Course Requirements for the Applied Microbiology Major (129-130 hours)

The program consists of three basic areas. The first area contains courses that provide the student with a broad-based general education. These courses are selected from English, fine arts, humanities and the social sciences. The second area contains courses that provide the student with a strong foundation in basic sciences, math and analytical reasoning skills. These basic courses include biology, chemistry, computer science, mathematics, microbiology and physics. The third area involves in-depth study in areas related to microbiology, including courses in industrial microbiology, immunology, pathogenic microbiology, biochemistry, and virology. All general requirements for graduation in the Department of Natural Sciences apply to this degree.

General Education Requirements (33 hours)

ENG 1301, 1302, 3302 and 2000-level literature course; three hours of fine arts; COMM 1304 or 3306, POLS 2303 and 2304, Social and Behavioral Sciences (one of the following: ANTH 2301, ANTH 2302, CJ 1301, ECO 1301, GEOG 1301, GEOG 1302, PSY 1303, SOC 1303), and two of the following: HIST 1305, 1306, 2303 and 2309

Basic Mathematics and Science (43 hours)

CS 1408 or 1410, MATH 1404, 2300 and 2401, BIOL 1301/1101 and 1302/1102, CHEM 1307/1107 and 1308/1108, PHYS 1307/1107 and 1308/1108, MBIO 2305/2105

Major Area of Emphasis (41 or 42 hours)

BIOL 3303/3103 and 4320, CHEM 3301/3201, 3302/3202, and 4340/4140, and MBIO 4110 (two credits), 4310/4111, 3320, 4320/4120 and 4340/4140, and one of the following: CHEM 3310/3110, CHEM 4342, BIOL 4310/4110 or BIOL 4313/4113

Electives (12 hours)

Six of the 12 hours may be satisfied by appropriate field experience.

Bachelor of Science

Major in Applied Physics

Peter Hoffmann-Pinther, PhD, Coordinator
Room 811-North, 713-221-8174

The Bachelor of Science in Applied Physics is designed to provide a firm knowledge of the foundations of physics necessary to understand and analyze physical problems of current interest in different fields, coupled with the mathematical and laboratory skills to address those problems successfully. Bachelor's degree physicists are employed in a variety of fields in industrial and government laboratories. They make contributions to such diverse areas as energy, aerospace and medicine. Currently UHD has a cooperative program with NASA, and other programs are being developed.

The program has two tracks: computational physics and scientific instrumentation. The computational physics track emphasizes the

use of computers and mathematical models in solving physical problems. Individuals with this background often act as liaison between engineering groups and their science and mathematics counterparts.

The scientific instrumentation track focuses on the tools necessary to implement industrial and laboratory applications of measurement and control through the use of computers and sensing devices. Both tracks are intertwined with other disciplines: computational physics with the Department of Computer and Mathematical Sciences and scientific instrumentation with the Department of Engineering Technology. While pursuing the program, students obtain an interdisciplinary background in physics, mathematics, computers and electronics.

Course Requirements for the Applied Physics Major (128-131 hours)

The program consists of 128 to 131 semester credit hours, of which 33 are for general education courses, 80 to 83 hours are in the sciences and mathematics and 15 hours are electives. The core curriculum is designed to provide a well-rounded graduate and consists of courses in English composition, speech, literature, fine arts, American history and political science, behavioral sciences, mathematics, natural sciences and computer science. All general requirements for graduation in the Department of Natural Sciences apply to this degree.

General Education Requirements (33 hours)

ENG 1301, 1302, and 3302 or 4306; 3 hours of sophomore literature; 3 hours of Fine Arts; POLS 2303, 2304; two of the following: HIST 1305, 1306, 2303 and 2309; COMM 1304 or 3306; Social and Behavioral Sciences (one of the following: ANTH 2301, ANTH 2302, CJ 1301, ECO 1301, GEOG 1301, GEOG 1302, PSY 1303, SOC 1303)

Basic Mathematics and Science (59 hours)

PHYS 2401/2101, 2402/2102, 3401, 3307, 3330, 3393, 4308, 4401; CHEM 1307/1107, 1308/1108; MATH 2401, 2402, 2403, 3301, 4304; CS 1408 or 1410

Major Area of Emphasis

Computational Physics (21 hours)

MATH 2307, 4302; CS 3308; and 12 hours from PHYS 3300, 3399, 4320, MATH 3302, 3315, 4305, 4311; CS 4301

Scientific Instrumentation (21-24 hours)

EET 3432, 3435, 4434 and three of the following: EET 3433, 3451, 3461, ET 4302, PHYS 3300, 3399

Electives (15 hours)

Bachelor of Science

Major in Biological and Physical Sciences

Glen Merrill, PhD, Coordinator
Room 810-North, 713-221-8168

The Bachelor of Science in Biological and Physical Sciences provides both a broad-based curriculum in the liberal arts and a specific set of courses in the natural sciences designed to meet the personal and career goals and interests of the student. This degree is especially appropriate for students interested in multi-

disciplinary areas such as environmental science, earth/geological science, forensic science, life science, medical technology, public health, science education, and any health-related program that requires a bachelor's degree for entry into a particular graduate program.

Course Requirements for the Biological and Physical Sciences Major (126 hours)

The approved degree plan for this program will be determined by consultation between the student, his or her advisor, and the department chair. A minimum of 126 hours of university-level course work is required. A maximum of 66 hours from a junior or community college may be approved as credit toward this degree. All general requirements for graduation in the Department of Natural Sciences apply to this degree.

General Education Requirements (44-48 hours)

ENG 1301, 1302 and a 2000-level literature course; COMM 1304 or 3306; two of the following: HIST 1305, 1306, 2303 and 2309; POLS 2303 and 2304; CS 1408 or 1410; 6 hours of behavioral and social sciences; 3 hours of arts and humanities; 3 hours of fine arts; MATH 1404 or 1505.

Lower-Level Science Requirements (22-26)

Select six of the following lecture/laboratory courses: BIOL 1301/1101, 1302/1102; CHEM 1307/1107, 1308/1108; GEOL 1305/1105, 1306/1106 or GEOL 1307, 1308; PHYS 1307/1107, 1308/1108 or 2401/2101, 2402/2102.

Upper-Level Requirements (36 hours)

At least 18 hours of the 3000-4000 level course work must be in the natural sciences with a minimum science grade point average of 2.0 or better and at least 7-8 hours must be in 4000-level science lecture courses with at least one laboratory course. Field experience or thesis credit cannot be used to satisfy this requirement.

Electives (17-21 hours)

Electives at any level chosen with advisor approval.

NOTE: No more than 28 hours of natural science courses (not including the hours of science listed under the Lower-Level Science Requirement) of the 126 hours of course work in this degree plan may be in a single discipline, and no more than 18 hours of the required upper-level science may be in a single discipline. The Department of Natural Sciences has five disciplines: biology, chemistry, geology, microbiology and physics.

Bachelor of Science

Major in Biology

John Capeheart, PhD, Coordinator
Room 808-North, 713-221-8176

The Bachelor of Science program provides both a broad-based curriculum in the Liberal Arts and in the Natural Sciences and a set of courses specifically in Biology. It is designed to meet the personal and career goals and interests of the student. The program allows the student a certain amount of flexibility in tailoring a degree program to his/her unique needs, yet does so within the confines of a traditional major in biology. This degree is particularly appropriate for students interested in the following areas: dentistry, medicine and related fields that require

post-graduate study, public health, graduate work in biological or biomedical sciences, and science education. The Natural Sciences Department offers other degree programs that serve similar student career objectives. Some are more broad-based; others are more narrowly focused.

Course Requirements for the Biology Major (133-136 hours)

The approved degree plan for this program will be determined through consultation among the student, her/his advisor, and the chairperson of the department. A minimum of 133 hours of university-level work will be required. A maximum of 66 hours from junior or community colleges may be approved as credit toward this degree. All general requirements for graduation in the department and the university apply to this degree.

General Education Requirements (33 hours)

ENG 1301, 1302 and a 2000-level literature course; one of the following: ENG 3302, 3325, 3324, or 4306; one of the following: COMM 1304, 3304, or 3306; two of the following: HIST 1305, 1306, 2303 and 2309; POLS 2303 and 2304; 3 hours of behavioral or social sciences; 3 hours of fine arts.

Basic Mathematics and Science (39 hours)

BIOL 1301/1101 and 1302/1102; CHEM 1307/1107 and 1308/1108; CS 1408 or 1410; MATH 1404 and 2300 or SOS 3312; MBIO 2305/2105; PHYS 1307/1107 and 1308/1108.

Upper-Level Science (31-34 hours)

BIOL 3303/3103; CHEM 3301/3201, 3302/3202 and 4304/4104; one of the following: BIOL 4320, 4325, 4230, 4330, or 4390; one of the following: BIOL 3310/3110, 3330/3130, 3340/3140 or 4390; two of the following: BIOL 3304/3104, 3305/3105, 3320/3120, 4303, 4310/4110, 4313/4113 or 4390; one of the following: BIOL 3301, 4260, 4340, 4350, 4360 or 4390.

Approved Electives (27 hours)

Must include at least eight hours of upper-level electives.

Bachelor of Science

Major in Biotechnology

Akif Uzman, PhD, Coordinator
Room 810-North, 713- 221-8488

This Bachelor of Science program provides a rigorous, broad-based curriculum in the Liberal Arts and in the Natural Sciences, and a set of courses specifically directed toward the field of Biotechnology. This interdisciplinary program provides both entry-level job skills in biotechnology and a strong academic background needed to pursue a master's or doctorate degree in Biotechnology, Biochemistry, Microbiology or Molecular Biology. This program will also satisfy course requirements for all major pre-professional degree programs in medicine, dentistry, pharmacy, optometry, and veterinary medicine.

Course Requirements for the Biotechnology Major (130-133)

The approved degree plan for this program will be determined through consultation among the student, her/his advisor, and the chairperson of the Department of Natural Sciences. A minimum of 133 hours of university-level course work will be required. The Department of Natural Sciences has the following requirements

for all science degrees: (1) Students must have a minimum GPA of 2.0 in all science courses that could apply toward the degree; (2) The only transfer credit courses with grades of D that apply toward a degree are first-year non-mathematics and non-science courses; (3) No more than three credit hours with a grade of D in upper-level science courses may be applied toward the degree; (4) Students must have at least 18 credit hours of upper-level science from UHD with a minimum GPA of 2.0 to apply toward the degree; and (5) Credit for science courses that are more than 10 years old must be approved by the department before they can be applied toward a degree. All general requirements for graduation in the department and the university apply to this degree.

General Education Requirements (33 hours)

ENG 1301, 1302, and a 2000-level literature course; one of the following ENG 3302, 3325, or 4306; one of the following COMM 1304, 3304, or 3306; two of the following HIST 1305, 1306, 2303, 2309; POLS 2303 and 2304; 3 hours of behavioral or social sciences; 3 hours of fine arts.

Basic Mathematics and Science (43 hours)

BIOL 1301/1101 and 1302/1102; CHEM 1307/1107 and 1308/1108; CS 1408 or 1410; 11 hours of mathematics to include MATH 1404 and 2401, MATH 2300 or SOS 3312; MBIO 2305/2105; and 8 additional hours of lower-level biology or physics.

Upper-Level Science (39-41 hours)

BIOL 3303/3103; BIOL 3330/3130; BIOL 4230, BIOL 4330; CHEM 3301/3201; CHEM 4340/4140; MBIO 4310/4111; MBIO 4320/4120; BIOL 4290 (Computational Biology); BIOL 4210 (Seminar in Biology) or MBIO 4210. Choose one of the following: BIOL 4325; BIOL 4313/4113; CHEM 3310/3110. Choose one of the following: BIOL 4320; CHEM 4342, MBIO 3320.

Research or internship in Biotechnology (3-4 hours)

Approved Electives (12 hours)

Must include Enhancement Courses as defined in the UHD Catalog

Bachelor of Science

Major in Chemistry

Tyra Montgomery, PhD, Coordinator
Room 817-North, 713-221-8485

The Bachelor of Science in Chemistry provides a flexible, broad-based curriculum in the Liberal Arts and the Natural Sciences for students pursuing a degree in chemistry. The program allows the student to tailor a degree program to his/her unique needs, yet does so within the confines of a traditional major in chemistry. This degree is particularly appropriate for students interested in pursuing post-graduate studies in medicine or related health professions or those who wish to prepare for a career in secondary education.

Course Requirements for the Chemistry Major (135 hours)

The approved degree plan for this program will be determined through consultation between the student, his/her advisor, and the chairperson of the Department of Natural Sciences. A mini-

mum of 135 hours of university-level course work will be required. A maximum of 66 hours from a junior or community college may be approved as credit toward this degree.

General Education Requirements (36 hours)

ENG 1301, 1302; ENG 3302, or 4306; and three hours of 2000-level literature; COMM 1304 or 3306; two of the following: HIST 1305, 1306, 2303 and 2309; POLS 2303 and 2304; one of the following: ART 1301, 1302, 1310, 3301; DRA 1301, 3303, 3304; MUS 2301, 2302; Behavioral Sciences one of the following: ANTH 2302, PSY 1303, SOC 1303, SOSE 3306; and 3 hours of enhancement not already met by the curriculum.

Basic Science and Mathematics (44 hours)

CS 1408 or 1410; MATH 1404, 2401, 2402, & 2403; BIOL 1301/1101 & 1302/1102, CHEM 1307/1107 & 1308/1108; PHYS 1307/1107 & 1308/1108.

Upper-Level Chemistry Courses (28 hours)

CHEM 3301/3201 & 3302/3202

CHEM 3310/3110

CHEM 3320

CHEM 3330/3130

CHEM 4340/4140

Three additional hours of 4000-level electives in chemistry

Approved Electives (27 hours)

Must include at least eight hours of upper-level courses.

Bachelor of Science

Major in Industrial Chemistry

Tyra Montgomery, PhD, Coordinator
Room 817-North, 713-221-8485

The Bachelor of Science in Industrial Chemistry is a rigorous program that prepares the student for a wide variety of technical positions in the chemical and petroleum industries of the greater Houston area, an area considered to be the chemical capital of the world. Graduates of this program will be well prepared to enter the highly technical and demanding field of industrial chemistry. Courses required for this program also provide students with the knowledge needed to pursue graduate studies in chemistry or related scientific fields.

Course Requirements for the Industrial Chemistry Major (133 hours)

The program is divided into three principal areas. The first area contains a group of courses in the liberal arts that provide the student with a broad-based general education. The second area contains courses that provide a strong foundation in basic science including courses in biology, chemistry, computer science, geology, mathematics and physics. The third area emphasizes the advanced methods, theories and applications of chemistry that are important to the world of industrial chemistry. Some of the courses included in this area are organic chemistry, physical chemistry, instrumental analysis, environmental chemistry, polymer chemistry and industrial organic chemistry. Students are encouraged to participate in an appropriate field experience or a directed studies research activity during their junior or senior year. All general requirements for graduation in the Department of Natural Sciences apply to this degree.

General Education Requirements (36 hours)

ENG 1301, ENG 1302 ; ENG 3302 or 4306 and a 2000-level literature course; three hours in fine arts; three hours in economics; COMM 1304 or 3306; POLS 2303 and 2304; two of the following: HIST 1305, 1306, 2303 and 2309; PSY 1303 or SOC 1303 or ANTH 2302

Basic Mathematics and Science (43 hours)

CS 1408 or 1410; MATH 2401, 2402 and 2403; BIOL 1301/1101 and 1302/1102; CHEM 1307/1107 and 1308/1108; GEOL 1307; PHYS 1307/1107, 1308/1108

Major Area of Emphasis (45 hours)

CHEM 3301/3201, 3302/3202, 3310/3110, 3320, 3330/3130, 3332/3132, 4310, 4360, 4362, 4364 and 4340/4140; PHYS: 3401

Electives (9 hours)

Six of the nine hours may be satisfied by appropriate field experience.

Pre-Professional Areas

The Department of Natural Sciences offers lower and upper-level courses in the academic and specialized areas described above. In addition, it provides courses that serve a number of pre-professional areas. Students in pre-dentistry, pre-medicine and pre-veterinary medicine who plan to earn a bachelor's degree prior to entering the respective professional school may choose to follow one of the degree programs offered by the department. The pre-clinical course requirements for students interested in clinical laboratory science, dental hygiene, nursing, nutrition and dietetics, occupational therapy, optometry, pharmacy, physical therapy, physician's assistant and dentistry, medicine and veterinary medicine are described below. Since entrance requirements vary widely and are subject to frequent changes, close consultation with an assigned advisor is recommended.

Clinical Laboratory Science/Medical Technology

Students who plan to become registered medical technologists must complete one year of clinical training during the fourth or fifth year of study. Prior to entering the clinical program they should complete the following courses: BIOL 1301/1101, 1302/1102, 3420; CHEM 1307/1107, 1308/1108, 3301/3201, 3310/3110, and 4340/4140; ENG 1301, 1302, and six hours of sophomore English; POLS 2303, 2304; HIST 1305, 1306; six hours of mathematics; MBIO 2305/2105, 4320/4120; PHYS 1307/1107, 1308/1108; suggested electives include BIOL 3303/3103, 3305/3105. The BS program in Biological and Physical Sciences is recommended for students interested in Medical Technology or Clinical Laboratory Science. UHD is affiliated with the School of Medical Technology at the Methodist Hospital of Houston.

Dental Hygiene

Students applying to schools of dental hygiene to pursue the Bachelor of Science in Dental Hygiene are required to complete at least 62 semester hours prior to their admission. Courses generally required include: BIOL 1301/1101, 1302/1102; CHEM 1305/1105, 1306/1106; ENG 1301/1302, and 6 hours of sophomore English; POLS 2303, 2304; 3 hours of mathematics; HIST 1305, 1306; PSY 1303; SOC 1303; COMM 1304.

Medical Records Administration/Health Information Management Program

To qualify for the Medical Record Administration designation, a bachelor's degree and completion of an accredited Medical Record Administration are required. There are three accredited MRA programs at the baccalaureate level in the State of Texas. The general requirements for the program in the State of Texas are: BIOL 1303/1103, 1304/1104; ENG 1301, 1302 and three hours of Sophomore English, GOV 2303, 2304; HIST 1305, 1305; MBIO 1305/1105; three hours each of business, mathematics, computer science and speech; and up to 21 hours, which must include biology and other courses depending on the institution. Check with your advisor for the specific requirements for a given institution.

Nursing

Students who intend to pursue a bachelor of science degree in nursing are required to complete at least 60 semester hours prior to entering a school of nursing. Courses generally required include: ANTH 2302; BIOL 1303/1103, 1304/1104, 1306; CHEM 1305/1105, 1306/1106, ENG 1301, 1302; POLS 2303, 2304; HIST 1305, 1306; MATH 2300 or SOS 2307; MBIO 1305/1105; PHIL 1301; PSY 1303, 3307; SOC 1303.

Nutrition and Dietetics

Students applying to schools of nutrition and dietetics to pursue the bachelor of science degree during their junior and senior year are required to complete at least 60 semester hours prior to their admission. UH-Downtown and the University of Texas School of Allied Health Sciences have a cooperative program for a Bachelor of Science in Nutrition and Dietetics. Lower-level courses required include: BIOL 1303/1103, 1304/1104, 1306; CHEM 1307/1107, 1308/1108, 3301/3201; ECO 2301 or 2302; ENG 1301, 1302 and 3 hours of sophomore English; POLS 2303, 2304; PSY 1303; SOC 1303. Recommended electives include courses in physics, statistics, speech and additional courses in social sciences, biology and mathematics.

Occupational Therapy

Prior to admission to a clinical program in occupational therapy, students are required to complete a minimum of 60 semester hours. Courses generally required include: BIOL 1301/1101, 1302/1102, 1303/1103, or 3304/3104, 1304/1104 or 3305/3105; CHEM 1307/1107, ENG 1301, 1302, plus zero-six hours of literature; POLS 2303, 2304; HIST 1305, 1306; zero-six hours of mathematics; PHYS 1307/1107; six hours of psychology, three-six hours of sociology and zero-three hours of speech. TWU requires a baccalaureate degree for transfer students.

Optometry

Students applying to the UH College of Optometry to pursue the bachelor of science and doctor of optometry degrees are required to complete at least 90 semester hours prior to their admission. Students may apply for admission while completing their pre-optometry course work. A baccalaureate degree is recommended prior to optometry studies. Courses required to enter the University of Houston College of Optometry include: BIOL 1301/1101, 1302/1102, 1303/1103, 1304/1104; CHEM 1307/1107, 1308/1108, 3301/3201 and 4340/4140; ENG 1301, 1302, and 6 hours of sophomore English; POLS 2303, 2304; HIST 1305, 1306; MATH 1404, 2401, 2300; MBIO 2305/2105; PHYS 1307/1107,

1308/1108; PSY 1303; SOS 3312; electives: six hours from art, drama, history, literature, music and philosophy.

Pharmacy

The schools of Pharmacy in the State of Texas are now instituting the Doctor of Pharmacy (PharmD) as the entry level degree for the field of pharmacy. For admission to the program at the University of Houston College of Pharmacy the courses listed below must be successfully completed or in progress. The courses listed also meet all but one or two of the minor requirements for admission to the colleges of pharmacy at the University of Texas at Austin, Texas Southern University, and Texas Tech University.

BIOL 1301/1101, 1302/1102; CHEM 1307/1107, 1308/1108, 3301/3201, 3302/3202; ENG 1301, 1302 and six hours of sophomore English; POLS 2303, 2304, HIST 1305, 1306; MATH 1306, 2300; MBIO 2305/2105; PHYS 1307/1107, PSY 1303, PSY 2302 or SOC 1303; COMM 1304, 3304 or 3306; Six hours of Cultural Heritage electives which meet the requirements of the UH core curriculum. Suggested electives are BIOL 3305/1105 and CHEM 4340/4140.

Physical Therapy

Most physical therapy programs recommend a Bachelor of Science degree prior to admission. Courses required include: BIOL 1301/1101, 1302/1102, 3305/3105, 3320/3120; CHEM 1307/1107, 1308/1108; ENG 1301, 1302; POLS 2303, 2304; HIST 1305, 1306; MATH 1301 and 2300; PHYS 1307/1107, 1308/1108; PSY 1303, 2310; SOC 1303; COMM 1304. The BS program in Biological and Physical Sciences is recommended for students interested in Physical Therapy.

Physician's Assistant

Prior to admission to a program leading to professional certification as a physician's assistant, students must complete a minimum of 90 hours. Many students who enter these programs have a four-year degree. Some programs require a degree prior to admission. Students should consult with their advisor for the requirements of the program(s) they are interested in. Courses generally required are: BIOL 1301/1101, 1302/1102 and 1303/1103, 1304/1104; CHEM 1307/1107, 1308/1108, ENG 1301, 1302, three hours of literature; three hours of speech; POLS 2303, 2304; HIST 1305, 1306; MATH 1301, 2300; MBIO 2305/2105; nine hours of behavioral and social sciences; eight hours of electives in health-related areas; and a computer literacy course.

Dentistry and Medicine*

A baccalaureate degree is strongly recommended for all pre-dental and pre-medical students since dental and medical colleges accept very few students without a degree. The courses required of most pre-dental and pre-medical students in Texas prior to admission include: BIOL 1301/1101, 1302/1102 and eight hours of advanced biology with lab, CHEM 1307/1107, 1308/1108, 3301/3201, 3302/3202, 4340; ENG 1301, 1302 and six hours of sophomore English (may include ENG 3302), MATH 2401 (except for dental students); PHYS 1307/1107, 1308/1108.

Veterinary Medicine*

A baccalaureate degree is recommended for all pre-veterinary medicine students. The following lists the minimum requirements for admission to the Texas A&M College of Veterinary Medicine: BIOL 1301/1101, 1302/1102, 3303/3103, 1306; CHEM 1307/1107, 1308/1108, 3301/3201, 4340/4140; MATH 2401 or 2300; MBIO 2305/2105; PHYS 1307/1107, 1308/1108; COMM 1304; ENG 1301, 1302, 3302, three hours of literature, three hours of technical writing, and a three hour course in animal nutrition.

**After completion of 30 semester hours of university-level work and passing all sections of the TASP exam, the pre-dental, pre-medical and pre-veterinary major must contact the Health Professions Advisory Committee in order to be assigned a permanent faculty advisor. The advisor and other committee members will be responsible for advising the student, providing information about application procedures and professional entrance exams, and providing letters of evaluation.*

Academic Programs—Graduate

UH-Downtown's College of Humanities and Social Sciences offers the Master of Science degree with a major in Criminal Justice, through the Department of Criminal Justice, and the Master of Arts in Teaching degree, through the Department of Urban Education.

COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

Michael R. Dressman, PhD, Dean
B. Christiana Birchak, PhD, Associate Dean
Anjoo Sikka, PhD, Associate Dean for Graduate Studies and Off-Campus Programs
Room 1015-South, 713-221-8009

Department of Criminal Justice

Beth Pelz, PhD, Chair
Room 1001-South, 713-221-8943

FACULTY

Associate Professors: Belbot, Pelz
Assistant Professors: Engram, Glazier, Kellar, Long, Walsh, Wang
Instructor: Jakovich
Lecturer: Hill

Master of Science

Major in Criminal Justice

Peggy A. Engram, PhD, Coordinator
Room 625-South, 713-221-8943

The degree is designed to prepare graduate students to provide leadership, critical thinking and knowledge in the areas of criminological theory, program evaluation and criminal justice administration. The curriculum provides for the development of skills in criminal justice planning, implementation, and evaluation in order to ensure that the management and administration of the criminal justice system is effective, efficient, and responsive to the needs of the community.

The degree is particularly beneficial for students already working in a criminal justice occupation and who wish to:

- increase their professional knowledge and skills or obtain employment in a criminal justice agency
- teach at the community college level
- pursue a doctoral degree.

Admission Standards

Admission is competitive and selective, and is designed to identify applicants who have the ability, interest, and qualities necessary to successfully complete the program, and the potential to contribute to the field of criminal justice.

To be eligible for admission, an applicant will be required to present the following:

- a baccalaureate degree or minor in criminal justice, or a degree in a related field from an accredited university. Applicants without a bachelor's degree in criminal justice will be required to complete additional preparatory course work as a condition of admission to the program.
- a minimum GPA of 3.0 for the final 60 semester hours of undergraduate study
- Graduate Record Examination scores: verbal and quantitative GRE scores are examined separately and evaluated as one information source in the total application
- three letters of recommendation from individuals acquainted with the applicant's academic work and potential
- if a graduate of a university in which English is not the native language, a minimum score of 550 with section scores 50 or higher on the Test of English as a Foreign Language.

Any student accepted into the MS program may be required to take remedial course work in Criminal Justice.

Applicants who have earned a graduate degree in a field other than criminal justice at an accredited institution, and who meet all other admission requirements, are not required to submit GRE scores. However, they are required to submit all graduate transcripts.

Degree Requirements

The degree requires a minimum of 36 semester hours for either thesis or non-thesis options. Thirty of these hours must be taken at UH-Downtown. Both thesis and non-thesis options require completion of the following core for a total of 18 hours.

CJ 6310	Issues in Criminal Justice
CJ 6320	Research Design and Methods
CJ 6321	Quantitative Analysis in Criminal Justice
CJ 6330	Advanced Criminology
CJ 6340	Administration in Criminal Justice
CJ 6350	Criminal Justice Policy Analysis

A minimum GPA of 3.0 for all course work is required.

Thesis Option

In addition to the core, thesis option candidates are required to complete 12 hours of electives, 3 hours of Thesis I, and continuous enrollment in Thesis II until completion of the thesis.

Non-Thesis Option

In addition to the core, non-thesis option candidates are required to complete 12 hours of electives and the following two courses (6 hours):

CJ 6322	Program Evaluation
CJ 6326	Communications & Technology in Criminal Justice

Non-thesis option candidates will be required to take and pass a comprehensive examination, encompassing materials covered in all six core curriculum courses. The purpose of this examination is to provide a structured situation in which the candidate can demonstrate proficiency in various areas of study.

Department of Urban Education

Maria Bhattacharjee, EdD, Chair
Room 601-South, 713-221-8906

FACULTY

Associate Professors: Bhattacharjee, R. Johnson, Key, Sikka
Assistant Professors: Brown, Chen, Cohen, Cmajdalka, Garcia, Hood, Middleton, Mullinnix, Thielemann, Van Horn, Woods-Stellman, Taylor
Lecturers: Paige

Master of Arts in Teaching

Majors in Elementary Education (with certification), Bilingual Education (with certification), Secondary Education (with certification), and Curriculum and Instruction.

Jane Thielemann, EdD, Coordinator
Room 647-South, 713-221-8906

The Master of Arts in Teaching, with majors in Elementary Education, Bilingual Education, Secondary Education, and Curriculum and Instruction, is designed to support existing teachers, and to prepare future teachers to teach in urban classrooms. The emphasis on urban teaching makes this degree truly unique. To meet the special needs of children in urban classrooms, students completing the MAT degree will demonstrate competency in the following areas of knowledge:

1. Characteristics and needs of learners in multicultural settings
2. Effective teaching practices that enhance student achievement for all students regardless of socioeconomic status, ethnicity, or language spoken
3. Factors related to the development of effective teaching environments in urban classrooms
4. Classroom-based research methodology to support best instructional practices
5. Enriched understanding of academic content areas of language arts, social studies, mathematics, or the natural sciences

Admission into the MAT program requires that the applicant:

1. Possess a baccalaureate degree from an accredited university and a GPA of 2.5
2. Be a teacher of record in an urban classroom
3. Obtain acceptable scores on a matrix based on GRE scores (General, and Writing-Analytical) and GPA
4. Obtain an acceptable score on the Test of English as a Foreign Language if they are graduates of universities in which English is not the native language

Degree Requirements

The MAT degree program requires a minimum of 39 semester credit hours. For degree completion, at least 33 hours must be completed at UH-Downtown, with a grade point average of 3.0. In addition, students must successfully complete a Directed Studies project (MAT 6390), with approval of the faculty advisor and the graduate committee.

Students seeking the MAT degree should select one of the following four options:

- Elementary Education (Certification Track)
- Bilingual Education (Certification Track)
- Secondary Education (Certification Track)
- Curriculum & Instruction (For Certified Teachers only)

Students seeking certification in conjunction with the MAT will be recommended for certification based upon satisfactory performance in the classroom, on the Examination for the Certification of Educators in Texas, and upon recommendation of the Graduate Studies Coordinator.

Core requirements (15 hours)

All MAT students will take the following courses:

- MAT 6315 Introduction to Educational Research
- MAT 6316 Advanced Methods for the Culturally Diverse Classroom
- MAT 6317 Classroom-Based Research
- MAT 6318 Technology Application for Curriculum Development and Instruction
- MAT 6390 Directed Study in Urban Teaching

Electives (12 hours)

Students will select three semester hours from:

- MAT 6319 Teaching the Language Minority Child
- MAT 6321 Teaching Children's Literature in Spanish
- MAT 6322 Readings in Critical Pedagogy

Depending on their teaching area, students will select nine semester hours from one of the following strands:

Language Arts Strand

- ENG 6306 Methods of Reading and Writing about Literature
- ENG 6319 Language Development and Variation: Implications for Educators
- ENG 6307 Advanced Shakespeare
- ENG 6330 Composition Pedagogy
- COMM 6301 Speech Communication for the Elementary/Middle School Teacher
- COMM 6302 Speech Communication for the Secondary School Teacher

Mathematics Strand

- MATH 6301 Geometry for Elementary School Teachers
- MATH 6302 Mathematical Structures for Elementary Teachers
- MATH 6304 Combinatorics and Probability for Elementary Teachers
- MATH 6311 Geometry for Secondary School Teachers
- MATH 6312 Analysis for Secondary School Teachers
- MATH 6318 Special Topics for Secondary School Teachers

Natural Sciences Strand

- NS 6301 Selected Topics in Earth and Environmental Science
- NS 6311 Selected Topics in Life Science
- NS 6321 Selected Topics in Physical Science
- BIOL 6301 Selected Topics in Advanced Biology
- CHEM 6301 Selected Topics in Advanced Chemistry
- GEOL 6331 Selected Topics in Advanced Geology and Physics

Social Studies Strand

- GEOG 6301 World Cultural Geography
- HIST 6301 Seminar in Modern European History
- HIST 6302 Seminar in U.S. History
- HIST 6303 Seminar in Texas History
- POLS 6301 American Government and Politics
- POLS 6302 Elements of Politics
- ECO 5331 Economic Processes

MAT students will take the following courses, depending upon their major:

*MAT with Major in Elementary Education
(with initial teacher certification)*

- MAT 6301 Science Methods for the Elementary/Middle School
- MAT 6302 Mathematics Methods for Elementary/Middle School Teachers
- MAT 6303 Diagnostic Testing of Reading
- MAT 6381 Internship in Urban Classrooms

*MAT with Major in Bilingual Education
(with initial teacher certification)*

- MAT 6304 Language Arts/Reading Methods in Spanish
- MAT 6305 Integrated Curriculum–Bilingual
- MAT 6306 Reading Diagnosis in Bilingual Classroom
- MAT 6381 Internship in Urban

*MAT with Major in Secondary Education
(with initial teacher certification)*

- MAT 6307 Managing the Secondary Environment for Student Success
- MAT 6308 Curriculum and Instruction in Secondary Schools
- MAT 6309 Assessment and Evaluation in Secondary Schools
- MAT 6381 Internship in Urban Classrooms

MAT with Major in Curriculum and Instruction

- MAT 6310 Reading in a Multicultural Classroom
- MAT 6311 Advanced Study of Developmental Psychology and Diversity
- MAT 6312 Foundations of Curriculum and Instruction for Culturally Diverse Settings
- MAT 6380 Practicum for Urban Teachers

Texas Common Course Numbering System Cross-Reference List

UHD Course Number		Common Course Number		UHD Course Number		Common Course Number		UHD Course Number		Common Course Number	
ACC	2301	ACCT	2301	CS	2401	COSC	2425	MATH	2402	MATH	2414
ACC	2302	ACCT	2302	CJ	1301	CRIJ	1301	MATH	2403	MATH	2415
ADSM	2303	OFAD	2304	CJ	2301	CRIJ	2328	MBIO	1105	BIOL	2120
ANTH	2301	ANTH	2301	CJ	2302	CRIJ	1306	MBIO	1305	BIOL	2320
ANTH	2302	ANTH	2302	CJ	2303	CRIJ	2313	MBIO	2105	BIOL	2121
ART	1301	ARTS	1303	DRA	1301	DRAM	1310	MBIO	2305	BIOL	2321
ART	1302	ARTS	1304	DRA	1303	DRAM	1351	MUS	1304	MUSI	1311
ART	1303	ARTS	1311	DRA	1304	DRAM	1352	MUS	1305	MUSI	1312
ART	1304	ARTS	1312	DRA	1305	DRAM	1330	MUS	2301	MUSI	1308
ART	1305	ARTS	1316	ECO	2301	ECON	2301	MUS	2302	MUSI	1309
ART	1306	ARTS	1317	ECO	2302	ECON	2302	PHIL	1301	PHIL	1301
ART	1310	ARTS	1301	ENGR	1301	ENGR	1304	PHIL	2301	PHIL	2316
ART	2303	ARTS	2316	ENGR	2308	ENGR	2301	PHIL	2302	PHIL	2317
ART	2304	ARTS	2317	ENGR	2310	ENGR	2302	PHIL	2303	PHIL	2303
BIOL	1101	BIOL	1106	ENGR	2407	ENGR	1407	PHYS	1105	PHYS	1111
BIOL	1102	BIOL	1107	ENG	1301	ENGL	1301	PHYS	1106	PHYS	1112
BIOL	1103	BIOL	2101	ENG	1302	ENG	1302	PHYS	1107	PHYS	1101
BIOL	1104	BIOL	2102	ENG	2301	ENGL	2332	PHYS	1108	PHYS	1102
BIOL	1108	BIOL	1108	ENG	2302	ENGL	2333	PHYS	1305	PHYS	1311
BIOL	1109	BIOL	1109	ENG	2311	ENGL	2327	PHYS	1306	PHYS	1312
BIOL	1301	BIOL	1306	ENG	2312	ENGL	2328	PHYS	1307	PHYS	1301
BIOL	1302	BIOL	1307	ENG	2313	ENGL	2322	PHYS	1308	PHYS	1302
BIOL	1303	BIOL	2301	ENG	2314	ENGL	2323	PHYS	2101	PHYS	2125
BIOL	1304	BIOL	2302	FIN	2301	REAL	1301	PHYS	2102	PHYS	2126
BIOL	1306	BIOL	1322	FREN	1401	FREN	1411	PHYS	2401	PHYS	2425
BIOL	1308	BIOL	1308	FREN	1402	FREN	1412	PHYS	2402	PHYS	2426
BIOL	1309	BIOL	1309	FREN	2301	FREN	2311	POLS	2303	GOVT	2301
BA	1301	BUSI	1301	FREN	2302	FREN	2312	POLS	2304	GOVT	2302
CHEM	1101	CHEM	1106	GEOG	1302	GEOG	1303	PSY	1303	PSYC	2301
CHEM	1105	CHEM	1105	GEOL	1105	GEOL	1103	PSY	2302	PSYC	2319 or
CHEM	1106	CHEM	1107	GEOL	1106	GEOL	1104			SOCI	2326
CHEM	1107	CHEM	1111	GEOL	1305	GEOL	1303	PSY	2306	PSYC	2315
CHEM	1108	CHEM	1112	GEOL	1306	GEOL	1304	SOC	1303	SOCI	1301
CHEM	1305	CHEM	1305	HIST	1305	HIST	1301	SOC	2302	SOCI	1306
CHEM	1306	CHEM	1307	HIST	1306	HIST	1302	SOC	2306	SOCI	2361
CHEM	1307	CHEM	1311	HIST	2303	HIST	2301	SPAN	1305	SPAN	1300
CHEM	1308	CHEM	1312	HIST	2309	HUMA	2319	SPAN	1401	SPAN	1411
COMM	1302	COMM	1307	MATH	1301	MATH	1314	SPAN	1402	SPAN	1412
CIS	1301	COSC	1301	MATH	1302	MATH	1316	SPAN	1411	SPAN	2313
CIS	2301	COSC	2390	MATH	1305	MATH	1324	SPAN	1412	SPAN	2315
CIS	2303	COSC	1332	MATH	1306	MATH	1325	SPAN	2301	SPAN	2311
CS	1305	COSC	1306 or	MATH	1310	MATH	1332	SPAN	2302	SPAN	2312
		COSC	1316	MATH	1404	MATH	2412	SPCH	1301	SPCH	1342
CS	1410	COSC	1435	MATH	2300	MATH	1342	SPCH	1302	SPCH	2341
CS	1408	COSC	1417	MATH	2305	MATH	2305	SPCH	1304	SPCH	1311
CS	2310	COSC	2335 or	MATH	2307	MATH	2318	SPCH	1385	SPCH	2320
		COSC	2330	MATH	2401	MATH	2413	SPCH	2303	SPCH	2335

Course Descriptions

Course Credit and Numbering System

Progress toward the completion of academic work is measured in terms of semester credit hours. One semester credit hour is normally equivalent to one hour of class work, or from one to six hours of laboratory work per week for a semester.

All courses are identified by discipline and number. The first digit of a course number indicates the academic level. Courses in the 1000 series are generally for freshmen, 2000 for sophomores, 3000 for juniors and 4000 for seniors. The second digit indicates the number of semester credit hours that the course carries. The third and fourth digits specify a particular course within its discipline.

The three numbers in parentheses after each course title indicate the number of semester credit hours, the number of class hours per week, and the number of additional laboratory or activity hours per week.

The Texas Common Course Numbering System

The University of Houston-Downtown is a participant in the Texas Common Course Numbering System (TCCNS). This system ensures that if a student takes a course bearing a common course number at another college or university, UH-Downtown will accept the course in transfer as equivalent to the corresponding UH-Downtown course.

Common course numbers have a four-letter prefix followed by a four-digit number. The four-letter prefix identifies the subject area. For example, ENGL is the common prefix for English courses, and COSC is the common prefix for computer science courses. The four-digit number following the prefix identifies a specific course with the subject area.

Each digit in the four-digit sequence gives additional information about the course. The first digit identifies the course as either freshman level (1) or sophomore level (2). The second digit identifies the number of credit hours students earn upon completing the course. The final two digits indicate the sequence in which courses are generally taken. Thus, French I (FREN 1311) is taken before French II (FREN 1312).

In this Catalog, for courses corresponding to those in the TCCNS, the common course number is indicated in parentheses at the end of the course description. The page to the left lists all UH-Downtown courses for which a common course number exists.

More information about the Texas Common Course Numbering System is available from the Office of Admissions (Room 326-South; 713-221-8533).

Accounting (ACC)

2301 Financial Accounting (3-3-0)

Prerequisite: MATH 1300.

Development of analytical skills necessary to construct and to understand financial statements. The conceptual framework used to explain financial accounting and the economic information generated in the accounting process. (ACCT 2301)

2302 Managerial Accounting (3-3-0)

Prerequisite: ACC 2301.

Cost analysis and control concepts used in providing internal accounting information for management. (ACCT 2302)

3300 Analysis of Financial Reporting (3-3-0)

Prerequisites: A grade of C or better in ACC 2301 and ACC 2302 and junior standing.

Review the development, construction and composition of principles of financial reporting and of financial statements and the techniques used to interpret such reports; designed to aid the student in developing techniques for investment decisions and credit extensions.

3301 Intermediate Accounting I (3-3-0)

Prerequisite: A grade of C or better in ACC 3300.

Further development of analytical skills necessary for measuring and reporting of assets and liabilities. Accounting principles underlying the preparation of financial statements are studied in depth. Additional special topics will be included.

3302 Intermediate Accounting II (3-3-0)

Prerequisite: A grade of C or better in ACC 3301.

Continuation of ACC 3301. Emphasis on measuring and reporting stockholder's equity. Other topics include: earnings per share, accounting for price changes, leases, pensions, accounting changes and error analysis. Additional special topics will be included.

3303 Cost Accounting (3-3-0)

Prerequisite: A grade of C or better in ACC 2302 and junior standing.

Cost accounting principles and techniques used in assembling data for product costing as well as for managerial use in planning, control and decision making. Topics include: cost terminology, job order and process costing, budgeting, cost-volume-profit analysis, standard costs and relevant costs for decision making.

3304 Accounting Information Systems (3-3-0)

Prerequisite: ACC 3300.

Study of accounting systems as information and control systems. Financial information needs, control methods and efficiency measures. Computer applications.

Course replaces ACCT 4324. Credit will not be given for both courses.

- 3305 Governmental Accounting (3-3-0)**
Prerequisite: ACC 2302 and junior standing.
Special features of budgetary and fund accounting as applied to nonprofit entities: municipalities, other governmental units and institutions such as schools and hospitals.
- 3307 Oil and Gas Accounting (3-3-0)**
Prerequisite: ACC 2302 and junior standing.
Accounting systems and procedures generally applicable to the oil and gas industry.
- 3323 International Accounting (3-3-0)**
Prerequisite: ACC 2302.
An overview of international financial accounting standards, current problems of international operations and multinational corporations. It also provides comparative analysis of accounting principles and practices outside the United States.
- 3399 Directed Study in Accounting**
Prerequisite: Formal approval by department chair and dean.
Selected topics in accounting; intensive individual study under the guidance of a member of the accounting faculty.
- 4301 Individual Income Taxation (3-3-0)**
Prerequisite: ACC 2302 and junior standing.
Determination of income and statutory deductions to arrive at net taxable income. In addition, the determination of tax liability and various tax credits are discussed. The Internal Revenue Code, various income tax acts and problems of the preparation of individual income tax returns are studied as they relate to current laws.
- 4302 Corporation Taxation (3-3-0)**
Prerequisite: ACC 4301.
Study of income tax acts as they relate to corporations and partnerships. Methods of tax research are integrated into each of the topics studied.
- 4303 Advanced Accounting (3-3-0)**
Prerequisite: A grade of C or better in ACC 3302.
Business combinations, home office and branches, and partnerships, with concentration on accounting and reporting for purchase acquisitions using the equity method.
- 4304 Auditing (3-3-0)**
Prerequisites: ACC 3304 and MATH 3309 or equivalent.
Introduction to auditing as it relates to the accounting profession. Studies emphasize generally accepted auditing standards; the acquisition, evaluation and documentation of audit evidences; professional responsibilities; and auditors' reports and opinions.
- 4305 Advanced Auditing (3-3-0)**
Prerequisites: A grade of C or better in ACC 4304.
To further develop professional auditing standards, including accounting and review services, quality control and review standards; also covers the advanced topics of auditing EDP systems and problems in statistical sampling.

- 4307 Advanced Cost Accounting (3-3-0)**
Prerequisites: ACC 3303 and MATH 3309 or equivalent.
This course is a continuation of cost accounting with major emphasis on quantitative decision-making.
- 4309 EDP Audit and Controls (3-3-0)**
(Cross-listed as CIS 4309)
Prerequisites: ACC 2302, CIS 1301 and junior standing.
Introduction to the fundamentals of auditing computer-based information systems. Emphasis for this course is on the concepts and techniques used in automated information systems audits. Exposure to risk assessment, business impact analysis, and disaster recovery analysis is provided as these topics relate to the varying requirements of business entities and of the business community. Credit may not be earned for both ACC 4309 and CIS 4309.
- 4321 Financial Reporting Theory (3-3-0)**
Prerequisite: A grade of C or better in ACC 3302.
Theoretical structures and rationale underlying financial reporting standards. Critical evaluation of Financial Accounting Standards.
- 4322 Estate, Gifts and Trust Taxation (3-3-0)**
Prerequisite: ACC 4301.
Statutory and case law approach to federal taxation of estates, gifts and trusts. Emphasizes use of Internal Revenue Code and regulations and includes tax planning and research.
- 4325 Tax Research Methodology (3-3-0)**
Prerequisites: ACC 4301 and ACC 4302.
This course focuses on fundamentals of federal tax research. The emphasis will be on methodology and sources of tax research, tax analysis and use of the computer in tax practice/research.
- 4380 Field Experience (3-3-0)**
For more information and qualifications see Field Experience in the College of Business section of this catalog and/or the department chair for your declared major.

Administrative Management (ADM)

- 1301 Keyboarding Applications (3-3-0)**
Introductory course designed to develop basic concepts and touch keyboarding and calculator skills on the personal computer using alphabetic and numeric keys. Students also learn standard formatting skills required to prepare business letters, reports, tables and memoranda.
- 2303 Information Processing I (3-3-0)**
Prerequisite: ADM 1301 or departmental approval.
Introductory course emphasizing the development of basic information processing skills including preparation of standard correspondence such as business letters; memos; reports; and merged letters; development of a presentation using software and integration of spreadsheets into basic correspondence. Students also learn basic desktop publishing skills required for development

of newsletters, brochures and manuscripts. The semester project is a desktop published newsletter.

3301 Records Management (3-3-0)

Prerequisite: Junior standing.

Principles of the creation, use, retention, protection/preservation, storage, retrieval of business records regardless of media or format.

3302 Supervision of Personnel (3-3-0)

Prerequisite: MGT 3301 or department approval.

Motivational techniques, productivity measurements, strategies and issues related to supervising office productivity. Issues addressed include working with vendors, personal aspects of supervision, effective colleague relations including office politics, reorganizing office systems and defining office productivity.

3303 Equal Opportunity Management (3-3-0)

(Cross-listed as MGT 3307)

Prerequisite: MGT 3301 or department approval.

Focuses on managerial issues affected by the rights of the workforce. Issues include harassment and discrimination based on such factors as race, ethnicity, gender, physically challenged and sexual orientation. Credit may not be earned for both ADM 3303 and MGT 3307.

3304 Information Processing II (3-3-0)

Prerequisite: ADM 2303 or department approval.

The course builds on topics introduced in Information Processing I, and introduces students to advanced topics in desktop publishing, presentation software, conversion and use of ASCII files, hypertext document preparation, and Web Page design. Semester projects include the production of a presentation using software and the development of a personal web page.

3308 Business Ethics (3-3-0)

(Cross-listed as BA 3308)

Prerequisite: Junior standing.

A theoretical examination of the bases for moral business decisions, raising of the moral recognition level and blending of theory with practice. Credit may not be earned for both BA 3308 and ADM 3308.

3309 Management of the Virtual Workplace (3-3-0)

(Cross-listed as CIS 3319)

Prerequisite: Junior Standing or instructor approval.

Management of the virtual workplace encompassing telecommuters, entrepreneurs and virtual office workers. Covers integration of the use of e-mail, computerized meetings, virtual office design, web page development, and other forms of telecommunications, as it becomes available. Simulations conducted via Internet with other on-line participation. Credit may not be earned for both ADM 3309 and CIS 3319.

3399 Directed Study in Administrative Management

Prerequisite: Approval of the department chair and dean.

Selected topics in office management; intensive individual study under the guidance of a faculty member.

4301 Business Communications (3-3-0)

Prerequisites: Senior standing in a business degree program.

Analysis of the communications process as it relates to business functions. Principles of communication are applied to the communication process for verbal and non-verbal communication between individuals and within groups. Emerging forms of communication such as telecommunications, e-mail and software presentation systems, as well as traditional forms of written business communication, are studied. In addition to developing strategies for oral presentations and written research, students enhance listening skills and critique oral and written communication.

4302 Supervisory Problems (3-3-0)

Prerequisite: ADM 3302 or department approval.

A case study course investigating supervisory problems in business, government and industry.

4303 Administrative Management (3-3-0)

Prerequisite: ADM 3301.

Capstone course of the Administrative Services Management curriculum. Methods of hiring, training and supervising office personnel are included, along with technology, people and procedures within the organization.

4305 Information Processing Management (3-3-0)

Prerequisites: ADM 3301.

Organizational concepts of managing information. Development of business reports related to records management via integration of word processing, spread sheet and data processing software. Investigation of appropriate interfacing methods and the impact of new technology on the organization.

4311 Government Procurement (3-3-0)

Prerequisites: MGT 3308 or instructor approval.

The procurement process in government and governmental agencies. Comparison of procurement practices in the public sector with those in the private sector. Emphasis on the political, legal, and fiscal aspects including financing and funding. Includes the contracting process, subcontracting, and administration of government contracts and grants including management of progress, quality, and contract changes.

4380 Field Experience

For more information and qualifications see Field Experience in the College of Business section of this catalog and/or the department chair for your declared major.

4390 Selected Topics in ADM (3-3-0)

Prerequisite: Approval of department chair.

Intensive study of one or more major topics in administrative management, especially with respect to a new or emerging area.

American Studies (AS)

1301 The American Experience (3-3-0)

A broad introduction to the social and intellectual currents which define American culture of the 20th century. The course will foster the development of critical and analytical skills appropriate to the study of culture.

Anthropology (ANTH)

- 2301 Physical Anthropology (3-3-0)**
Prerequisite: Enrollment in or credit for ENG 1301.
Humans as physical beings, through the study of evolution, ancestry, prehistory and genetics. (ANTH 2301)
- 2302 Cultural Anthropology (3-3-0)**
Prerequisite: Enrollment in or credit for ENG 1301.
An introduction to the study of humans as cultural beings. The nature of culture and the economic, social and political impact of cultural changes. Institutions of primitive people are compared with those of urban societies. (ANTH 2302)
- 3313 Health, Medicine, and Culture (3-3-0)**
Prerequisites: ANTH 2301, ANTH 2302, or permission of the instructor.
This course will examine the anthropology of health including the concepts of illness, medicine, aging, and the role of the healer from a cross-cultural perspective. Topics will primarily focus on the interaction of culture and biology in relation to causes of disease, treatment of disease, and the attitudes of the population.
- 4390 Special Topics in Anthropology (3-3-0)**
Prerequisite: 3 hours in Anthropology or permission of the instructor.
Selected topics in anthropology. Topics may vary from semester to semester and may be repeated for credit.

Art (ART)

- 1301 History of Art: Paleolithic to Renaissance (3-3-0)**
Prerequisite: Enrollment in or completion of ENG 1301.
The study of art forms from a Western perspective from the ancient to the Gothic periods, with emphasis on enjoyment and understanding. (ARTS 1302)
- 1302 History of Art: Renaissance to Present (3-3-0)**
Prerequisite: Enrollment in or completion of ENG 1301.
The study of art forms from a Western perspective from the Renaissance to the present, with emphasis on enjoyment and understanding. (ARTS 1304)
- 1303 Design and Materials (3-3-3)**
Laboratory fee required.
Analysis of fundamental principles and elements in two- and three-dimensional design. Work with various materials and colors in relation to space and movement. (ARTS 1311)
- 1304 Design Color and Structure (3-3-3)**
Prerequisite: ART 1303 or equivalent.
Laboratory fee required.
A continuation of the study of fundamental principles and elements in two- and three-dimensional design. (ARTS 1312)
- 1305 Drawing I (3-3-3)**
Laboratory fee required.
Representation drawing with a consideration of perspective, light and shade; practice using charcoal, pencil, conte, pen and wash. (ARTS 1316)

- 1306 Drawing II (3-3-3)**
Prerequisite: ART 1305 or equivalent.
Laboratory fee required.
A continuation of representation drawing, with a consideration of perspective, light and shade; practice using charcoal, pencil, conte, pen and wash. (ARTS 1317)
- 1310 Art Appreciation (3-3-0)**
An introduction to the visual arts. The visual elements of artworks are defined and students are introduced to the vocabulary, principles and techniques of art in different periods and cultural settings. Includes individual art projects and tours. (ARTS 1301)
- 2301 Figure Drawing (3-3-3)**
Laboratory fee required.
Introduces students to figure drawing and develops skill in perceiving the human figure as form and volume in live models and mannequins. Various media and techniques are used.
- 2303 Painting I (3-3-3)**
Laboratory fee required.
Application of methods and techniques of still-life painting, correlation of media and approaches to mixed media. (ARTS 2316)
- 2304 Painting II (3-3-3)**
Prerequisite: ART 2303 or equivalent.
Laboratory fee required.
Continuation of ART 2303. (ARTS 2317)
- 3301 Major Developments in the History of Art (3-3-0)**
(Cross-listed as HUM 3312)
A study of important historical events in the development of the theory and practice of the visual arts. Credit may not be earned for both ART 3301 and HUM 3312.
- 3302 History of Modern Art (3-3-0)**
(Cross-listed as HUM 3324)
Prerequisite: ENG 1301 and ART 1301, 1302, or 1310.
A survey of world art from the Revolutionary Period (late 18th century) to contemporary times, including such artistic movements as Neoclassicism, Romanticism, Impressionism, Cubism, Surrealism and Pop Art. Credit may not be earned for both ART 3302 and HUM 3324.
- 3305 Computer Graphics (3-3-0)**
Prerequisite: ART 1303 (Design and Materials) or permission of instructor
Students learn about the extensive scope of computer graphics by applying basic principles in art and design. Students will develop skills in symmetry and pattern, as they solve fundamental design problems and create images with drawing software.

Biology (BIOL)

- 1101 General Biology Laboratory I (1-0-3)**
Prerequisite: Credit or enrollment in BIOL 1301.
Laboratory fee required. \$12.
Appropriate exercises and experiments requiring scientific observations and analysis that illustrate some of the basic techniques, concepts and facts presented in BIOL 1301, with emphasis on plant biology. (BIOL 1106)

- 1102 General Biology Laboratory II (1-0-3)**
Prerequisites: BIOL 1101 and credit or enrollment in BIOL 1302.
Laboratory fee required. \$12.
 A continuation of BIOL 1101, with emphasis on animal biology. Animal dissection required. (BIOL 1107)
- 1103 Human Anatomy and Physiology Laboratory I (1-0-3)**
Prerequisite: Credit or enrollment in BIOL 1303.
Laboratory fee required. \$12.
 Laboratory course emphasizing some of the techniques and principles presented in BIOL 1303. Animal dissection required. (BIOL 2101)
- 1104 Human Anatomy and Physiology Laboratory II (1-0-3)**
Prerequisites: BIOL 1103 and credit or enrollment in BIOL 1304.
Laboratory fee required. \$12.
 A continuation of BIOL 1103. (BIOL 2102)
- 1301 General Biology I (3-3-0)**
Prerequisites: Credit or enrollment in BIOL 1101, ENG 1301 and MATH 1301.
 Topics include the scientific method, chemical and physical bases of life, cell structure and function, respiration, photosynthesis, cell division, heredity, regulation of genes, the diversity of life, and plant structure and function. BIOL 1301 and 1302 are courses designed for students who plan to take advanced level courses in biology and microbiology. Only one of the following courses may be applied toward a degree: BIOL 1301 or BIOL 1308. (BIOL 1306)
- 1302 General Biology II (3-3-0)**
Prerequisites: BIOL 1101, BIOL 1301 and credit or enrollment in BIOL 1102.
 Continuation of BIOL 1301. Topics include digestion, nervous and hormonal control, gas exchange, excretion, homeostasis, reproduction and development, animal behavior, evolution and the ecology of biological communities. (BIOL 1307)
- 1303 Human Anatomy and Physiology I (3-3-0)**
Prerequisites: Credit or enrollment in BIOL 1103
 Cells and tissues of the human body and its skeletal, muscular, integumentary, nervous and sensory systems. (BIOL 2301)
- 1304 Human Anatomy and Physiology II (3-3-0)**
Prerequisites: BIOL 1303 and credit or enrollment in BIOL 1104.
 Continuation of the study of the human body, with emphasis on the endocrine, circulatory, respiratory, digestive, excretory and reproductive systems. (BIOL 2302)
- 1306 Fundamentals of Nutrition (3-3-0)**
Prerequisite: Credit or enrollment in ENG 1301.
Credit or enrollment in BIOL 1303 and CHEM 1305 is recommended.
 Food, nutrients, and their digestion, absorption and metabolism in humans are studied. Regional and cultural diet patterns are discussed. Nutritional assessment procedures are performed. (BIOL 1322)
- 1310 Introduction to Biology I (3-2-2)**
Laboratory fee required: \$12.
Prerequisites: Credit or enrollment in ENG 1301.

An integrated lecture/laboratory approach to biology for non-science majors. This course will include a study of the scientific method, how it compares to other methods of inquiry, and the relationship between science and technology. Emphasis will be placed on the biology of the individual including composition of human cells, the organization of the human body, and the functions of its organ systems. Issues related to animal experimentation, genetic engineering, cloning, human reproduction, and contraception will be discussed. Laboratory activities will be experimental in nature, and include the use of a variety of instruments and techniques used by scientists to study biological phenomena.

- 1312 Introduction to Biology II (3-2-2)**
Laboratory fee required: \$12.
Prerequisite: BIOL 1310.
 Integrated lecture/laboratory course designed for non-science majors. This course will expand the study of biology to the environment outside the human body. Major themes will include adaptation to environmental conditions and change, evolution, the diversity of life forms, how humans interact with and affect other organisms, overpopulation, and human alteration of the physical environment. Laboratory activities will be investigative in nature and relate to the lecture topics.
- 2201 Medical Terminology (2-1-2)**
Prerequisites: ENG 1302 and 8 hours of biology.
 A lecture/multimedia-based course in biological and medical terminology. The most frequently used and important suffixes and word roots will be presented along with the rules for interpreting, forming, and using Greek and Latin-based scientific terms. This is not a laboratory science course. (Pending Coordinating Board approval)
- 3102 General Ecology Laboratory (1-0-3)**
Prerequisites: Credit or enrollment in BIOL 3302
 Explore theoretical concepts and practical applications in ecology. Population dynamics will be investigated using computer simulations. Field sampling of local plant and animal populations will expose students to practical techniques of data collection and analysis.
- 3103 General Genetics Laboratory (1-0-3)**
Prerequisite: Credit or enrollment in BIOL 3303.
Laboratory fee required. \$12.
 Laboratory topics designed to mimic classical genetic investigations. Experiments focus on the use of *Drosophila melanogaster*. Students conduct individual and group research projects.
- 3104 Vertebrate Embryology Laboratory (1-0-3)**
Prerequisite: Credit or enrollment in BIOL 3304.
Laboratory fee required. \$12.
 Appropriate exercises and experiments that illustrate some of the basic concepts, experimental techniques and facts presented in BIOL 3304.
- 3105 Human Anatomy Laboratory (1-0-3)**
Prerequisite: Credit or enrollment in BIOL 3305.
 Appropriate exercises and activities that illustrate the techniques, concepts, and facts presented in BIOL 3305.

- 3110 Plant Identification Laboratory (1-0-3)**
Prerequisite: Credit or enrollment in BIOL 3310.
Laboratory fee required. \$12.
 Emphasizes plant identification and naming of plants from selected families of plants. A collection of local native plants will be required with appropriate scientific naming including family, genus, and species.
- 3120 Human Physiology Laboratory (1-0-3)**
Prerequisite: Credit or enrollment in BIOL 3320.
Laboratory fee required. \$12
 Appropriate exercises and experiments that illustrate techniques, facts, and concepts presented in BIOL 3320.
- 3130 Plant Biology Laboratory (1-0-3)**
Prerequisite: Credit or enrollment in BIOL 3330.
Laboratory fee required. \$12.
 Laboratory investigations and experimental analysis regarding the biology of plants, including plant taxonomy, morphology, anatomy, reproductive biology, nutrient requirements, photobiology, hormonal regulation, ecology, plant tissue culture and applications.
- 3140 Biology of Fungi Laboratory (1-0-3)**
Prerequisite: Credit or enrollment in BIOL 3340.
Laboratory fee required. \$12.
 A study of the principles and applications of techniques for isolation, culture, and identification of fungi; and a study of the characteristics of fungal growth, nutrition, metabolism and genetics.
- 3150 Ornithology Laboratory (1-0-3)**
Prerequisites: Credit or enrollment in BIOL 3350
 Field and museum laboratories will emphasize aspects of morphology, ecology and behavior, as well as taxonomy and identification of local bird species. Weekend field trips will be required.
- 3300 Undergraduate Research (3-0-9)**
Prerequisites: Approval by Natural Science advisor and a minimum GPA of 2.5, and permission of instructor.
 Independent investigation of a specific topic or problem in biology research under the direction of a selected faculty member.
- 3301 Evolution of the Earth and its Inhabitants (3-3-0)**
Prerequisites: One year of biology or geology.
 Analysis of the concepts and discoveries that led Darwin to propose his Theory of Natural Selection to explain evolution and the subsequent lines of evidence in both geology and biology that substantiate his ideas and unify our understanding of the relationships of various organisms to each other. Specific groups of organisms will be discussed in relation to morphological changes through time as well as adaptations that may occur due to environmental changes and other variables.
- 3302 General Ecology (3-3-0)**
Prerequisites: BIOL 1302/1102, MATH 1404 or 1505 and enrollment or credit in BIOL 3102
 Introduction to the major theories in ecology with particular emphasis on mathematical investigations of population dynamics, community ecology, and evolutionary ecology. Movement of energy and nutrients through ecosystems will also be covered
- 3303 General Genetics (3-3-0)**
Prerequisites: BIOL 1302/1102, CHEM 1308/1108, and credit or enrollment in BIOL 3103.
 Fundamental principles of genetics including Mendelian inheritance, linkage, the chemical basis of genetics, mutations and chromosomal aberrations.
- 3304 Vertebrate Embryology (3-3-0)**
Prerequisites: BIOL 1302/1102, CHEM 1308/1108, and credit or enrollment in BIOL 3104.
 A study of the development of the vertebrate body from fertilization to birth or hatching, with emphasis on the frog, chicken, pig and human.
- 3305 Human Anatomy (3-3-0)**
Prerequisites: 8 hours of biology, CHEM 1308/1108, and enrollment in BIOL 3105.
 A study of the structure of the human body using a systems approach. System and structural interactions will be examined. Structural and functional relationships will also be assessed.
- 3310 Plant Identification (3-3-0)**
Prerequisites: BIOL 1302/1102 and credit or enrollment in BIOL 3110.
 A study of the principles of naming, identification and classification of plants with an emphasis on the characteristics of select families of flowering plants.
- 3320 Human Physiology (3-3-0)**
Prerequisites: 8 hours of biology, CHEM 1308/1108 and credit or enrollment in BIOL 3120.
 A study of the function of the human body using a systems approach. Course will focus on the interaction of body systems and the maintenance of homeostasis. Some study of major disease processes associated with each system will be included.
- 3330 Plant Biology (3-3-0)**
Prerequisites: BIOL 1302/1102, CHEM 1308/1108, and credit or enrollment in BIOL 3130.
 Comprehensive analysis regarding the biology of plants, including plant taxonomy, morphology, anatomy, physiology, reproduction, development, ecology, ethnobotany and biotechnology.
- 3340 Biology of Fungi (3-3-0)**
Prerequisite: BIOL 1302/1102, CHEM 1308/1108 or credit or enrollment in BIOL 3140.
 A comprehensive study of fungi with emphasis on higher fungi. Course includes aspects of the fungal body, growth, sporulation, reproduction and diversity.
- 3350 Ornithology (3-3-0)**
Prerequisites: BIOL 1302/1102
 The biology of birds, including evolutionary history, functional morphology, physiology, ecology, and behavior. The course will explore the adaptations characteristic of the different orders of birds with particular emphasis on the local avian community.
- 3399 Directed Study in Biology (3-3-0)**
Prerequisite: Approval of the department chair and the dean; junior standing; minimum GPA of 3.0.
 Intensive in-depth study of various topics under the guidance of a member of the biology faculty.

- 4110 Histology Laboratory (1-0-3)**
Prerequisite: Credit or enrollment in BIOL 4310.
Laboratory fee required. \$12.
 Appropriate exercises and experiments that illustrate some of the basic techniques, concepts and facts presented in BIOL 4310.
- 4113 Parasitology Laboratory (1-0-3)**
Prerequisite: Credit or enrollment in BIOL 4313.
Laboratory fee required. \$12.
 Appropriate exercises and experiments that illustrate some of the basic techniques, concepts and facts presented in BIOL 4313.
- 4210 Biology Seminar (2-2-0)**
Prerequisites: Senior standing and majoring in an area of life science.
 Presentations and discussions related to recent research accomplishments in biology and biotechnology including student research presentations.
- 4230 Techniques in Cell and Molecular Biology (2-0-6)**
Prerequisites: BIOL 3303 and permission of instructor.
Laboratory fee required. \$24.
 Introduction to modern techniques in the manipulation of genes, and their introduction and regulation in eukaryotic cells. Techniques include polymerase chain reaction, in vitro mutagenesis, and fluorescence microscopy. Laboratory work emphasizes the design and carrying out of student-designed protocols.
- 4260 Environmental Laboratory and Field Studies (2-0-6)**
Prerequisites: credit for BIOL 1302/1102, CHEM 1308/1108, GEOL 1306/1106 and credit or enrollment in either BIOL 4360, CHEM 3320 or GEOL 3303.
Laboratory fee required: \$24.
 Intensive laboratory and field investigations to illustrate principles and current concepts presented in BIOL 4360, CHEM 3320 and GEOL 3303 by sampling, measuring and analyzing biological, chemical and physical factors of select environments, with emphasis on the activities of humans and their effects on ecosystems.
- 4303 Human Genetics (3-3-0)**
Prerequisites: BIOL 3303/3103
 A study of inherited traits in humans with emphasis on the mapping of the human genome, molecular mechanisms of disease, Karyotyping and chromosomal abnormalities, genetic testing, gene therapy, and ethical issues associated with human genetics.
- 4310 Histology (3-3-0)**
Prerequisites: BIOL 1302/1102, CHEM 1308/1108, and credit or enrollment in BIOL 4110.
Laboratory fee required. \$12.
 A comprehensive overview of the microscopic and submicroscopic anatomy of the vertebrate body, with emphasis on humans. Special topics include histochemistry, tissue culture and pathophysiology.
- 4313 Parasitology (3-3-0)**
Prerequisites: BIOL 1302/1102, CHEM 1308/1108, and credit or enrollment in BIOL 4113.
 Introduction to parasitism as a biological concept and a survey of specific parasites of medical and veterinary importance. Additional topics include the relationship of opportunistic parasites in the treatment of AIDS, immunodiagnosis and the status of vaccine development for parasitic diseases.
- 4320 Cellular Biology (3-3-0)**
Prerequisites: BIOL 1302/1102, CHEM 1308/1108, and junior-level standing. CHEM 3302/3202 is recommended.
 The composition, structure, functions and dynamics of cells. Topics include interrelations of organelles, molecular transport and membrane trafficking, cytoskeletal interactions, enzymatic catalysis and metabolism, nucleocytoplasmic relationships, intercellular communications and laboratory analyses.
- 4325 Advanced Microscopy (3-1-6)**
Prerequisites: 16 hours of laboratory-based science which includes 8 hours at the upper level, and approval of course instructor.
Laboratory fee required. \$24.
 Instrumentation principles and laboratory exercises associated with the applications of a variety of microscopes and associated techniques, including preparation of samples, light microscopy (bright-field, dark-field, phase-contrast, polarized and fluorescent), scanning electron microscopy, transmission electron microscopy, and X-ray microanalysis.
- 4330 Molecular Biology (3-3-0)**
Prerequisite: BIOL 3303 or equivalent.
 Introduction to the molecular aspects of gene regulation in eukaryotic cells. Eukaryotic gene regulation is explored in the context of cell cycle regulation, cell differentiation, and cancer. The course emphasizes study of the primary research literature and the creation and testing of hypotheses using current technology.
- 4340 Animal Behavior (3-3-0)**
Prerequisites: BIOL 1302/1102 and ENG 1302.
 Behavioral capacities of the animal kingdom, with emphasis on methods of study, instinctive behavior, the biological basis of behavior, learning and intelligence and social behavior.
- 4350 Social Biology (3-3-0)**
Prerequisites: 8 hours of biology, ENG 1302, PSY 1303 or SOC 1303, and junior-level standing.
 This discussion-format course is intended to bring together ideas and students from the disciplines of biology, psychology, sociology and anthropology. Its focus is on the area of animal behavior that involves the interaction of conspecifics. Topics to be discussed include aggression, courtship, parental behavior, altruism, behavior genetics, dominance, competition and cooperation, and behavioral ecology.
- 4360 Environmental Biology (3-3-0)**
Prerequisites: BIOL 1302/1102, CHEM 1308/1108, and 4 hours of biology above the 1000-level.
 Ecological principles and current topics regarding the interrelationships among organisms and their environments, including analysis of human activities that impact natural ecosystems and cause environmental problems.

- 4380 Field Experience**
Prerequisites: At least 85 hours and departmental approval.
 Field experience integrates theory learned in biology courses with practical laboratory or field experience. Students are placed in laboratories, clinical settings or under the tutelage of a field researcher. May be repeated for additional credit; 6 hours may be applied toward a degree. A summary oral and written report must be presented to the natural science faculty.
- 4190-4490 Selected Topics in Biology**
Prerequisites: Will vary according to topic offered.
 Selected topics in upper-level biology according to the needs and interests of the students. Example topics include physiological ecology of vertebrates (4390A).
- 4399 Senior Honors Thesis**
Prerequisites: Senior standing and enrollment in the Honors Program in the Natural Sciences.
 A research project, supervised by a member of the natural sciences faculty or a scientist at an affiliated research institution or laboratory. The completed research project must be presented in both written and oral form to the science faculty. No more than six hours credit for this course may be applied toward a degree.
- 6301 Selected Topics in Advanced Biology (3-3-0)**
Prerequisites: Graduate Standing
 Possible topics include modern genetics, biotechnology, immune disorders and health, urban science and ecology, computational biology, and advanced investigative methods in biology.

Business Administration (BA)

- 2301 Business Cornerstone (3-3-0)**
 An introductory course for all majors. Topics include critical thinking, ethics, diversity, teams, research methods, and international issues. The critical thinking component introduces the concepts and techniques of critical thinking. The ethics component introduces the basic ethical concepts, principles, and techniques of moral reasoning needed in business. The diversity component develops an understanding of the cultural demographic and regulatory aspects of a diverse population of customers and employees. The teams component focuses on the importance and role of teams in business. The research methods component introduces the concepts of primary and secondary sources of information for business research. The international issues component introduces the global aspects of business.
- 3301 Legal Environment of Business (3-3-0)**
Prerequisites: Junior standing and POLS 2303/ POLS 2304.
 An introduction to business law, with special emphasis on the legal and ethical environment of business, both domestic and international. Topics include a description of the American legal system, crimes, torts, contracts, agency and legal liability, business organizations, and governmental regulations.

- 3302 Commercial Law (3-3-0)**
Prerequisite: BA 3301.
 A continuation of BA 3301, including laws governing sales, credit transactions, bankruptcy, negotiable instruments, corporations, partnerships and property. The emphasis of this course is commercial law and business.
- 3303 Environmental Issues in Business (3-3-0)**
Prerequisite: BA 3301 or instructor approval.
 Contemporary domestic and international environmental issues with emphasis on the legal framework within which these issues are addressed to provide an understanding of the associated business risks relating to these issues. Applicable federal and state regulations, their enforcement and effects on business will be covered. Consequences of noncompliance such as civil and criminal prosecution and tort liability will also be studied.
- 3304 International Business Law (3-3-0)**
Prerequisite: BA 3301 or instructor approval.
 An introduction to diverse legal influences which affect international business transactions. Topics include: international law and organizations, bilateral and multilateral trade agreements, governmental policies, competition, property rights, contracts relating to import/ export, and dispute resolution.
- 3305 Entrepreneurship (3-3-0)**
Prerequisite: Junior standing or instructor approval.
 Creation and management of new businesses. Characteristics and special problems of entrepreneurs. New venture ideas and strategies. Preparation of new venture plans. Acquisition of venture capital.
- 3308 Business Ethics (3-3-0)**
(Cross-listed as ADM 3308)
Prerequisite: Junior standing.
 A theoretical examination of the bases for moral business decisions, raising of the moral recognition level and blending of theory with practice. Credit may not be earned for both BA 3308 and ADM 3308.
- 3309 Real Estate Law (3-3-0)**
Prerequisite: Junior standing.
 A study of the application of the law in real estate interests, conveyance of title, contracts of sale, title searches, types of ownership, liens and mortgages, insurance, leases and taxation of property owners.
- 3315 Diversity and the Law (3-3-0)**
Prerequisite: BA 3301.
 Organizations must deal with diversity and related legal issues in a variety of environments, external as well as internal, which are highly regulated and surround diversity in numerous different contexts involving employers, employees, customers, the courts, and local, state, and federal agencies. Emphasis will be placed upon organizational compliance with applicable legal constraints by creating an atmosphere of understanding of and appreciation for diversity.
- 3320 International Business (3-3-0)**
Prerequisite: Junior standing or instructor approval.
 International Business adopts a broad approach to

the basic principles of business globalization. Emphasis is placed on the business enterprise as it conducts its commercial activity in environments that are different in their economic, political, legal, social and cultural aspects from the firm's corresponding domestic environment.

- 3399 Directed Study in Business Administration (3-3-0)**
Prerequisite: Formal approval of department chair and dean.
Selected topics in business administration; intensive individual study under the guidance of a member of the business faculty.
- 4302 Business Strategy (3-3-0)**
Prerequisites: Must be a declared major in the College of Business and have completed all required general education and business core courses. May be concurrently enrolled in MGT 3332. Successful completion of the Writing Proficiency Examination is required.
The capstone course in business emphasizing planning and decision-making, formulating strategies and implementing plans for action. Comprehensive cases provide the opportunity to study proper interrelationships among production, operations, finance, accounting, marketing and the many other functions involved in managing a business enterprise.
- 4380 Field Experience**
For more information and qualifications see Field Experience in the College of Business section of this catalog and/or the department chair for your declared major.
- 4390 Selected Topics in Business (3-3-0)**
Prerequisite: Approval of instructor or department chair.
Intensive study of one or more major topics in business. May be repeated for credit with departmental approval when topics vary.

Chemistry (CHEM)

- 1105 Introductory Chemistry Laboratory I (1-0-3)**
Prerequisite: Credit or enrollment in CHEM 1305.
Laboratory fee required. \$12.
Appropriate laboratory experiments for the student who will not be a professional physical scientist. The experiments support the principles of chemistry developed in the lecture portion of the course and illustrate some of the basic approaches to chemical problems. (CHEM 1105)
- 1106 Introductory Chemistry Laboratory II (1-0-3)**
Prerequisites: CHEM 1105 and credit or enrollment in CHEM 1306.
Laboratory fee required. \$12.
Appropriate laboratory experiments in applications of fundamental principles of organic chemistry and biochemistry for the student who will not be a professional physical scientist. The experiments support the principles of chemistry developed in the lecture portion of the course. (CHEM 1107)
- 1107 General Chemistry Laboratory I (1-0-3)**
Prerequisite: Credit or enrollment in CHEM 1307.
Laboratory fee required. \$12.
Experiments which illustrate basic laboratory techniques and procedures, physical and chemical properties, stoichiometry, solutions, and thermochemistry. (CHEM 1111)
- 1108 General Chemistry Laboratory II (1-0-3)**
Prerequisites: CHEM 1107 and credit or enrollment in CHEM 1308.
Laboratory fee required. \$12.
Emphasis on reactions in aqueous solutions, gas laws, equilibrium, kinetics and qualitative analysis, with an introduction to instrumental analysis. (CHEM 1112)
- 1305 Introductory Chemistry I (3-3-0)**
Prerequisite: Credit or enrollment in CHEM 1105 and credit or enrollment in MATH 1301 or MATH 1310.
The composition, properties and interaction of substances necessary to produce new materials. Topics include stoichiometry, atomic structure, chemical bonds, states of matter, electrolyte solutions and chemical reactions. (CHEM 1305)
- 1306 Introductory Chemistry II (3-3-0)**
Prerequisite: CHEM 1305 and credit or enrollment in CHEM 1106.
The chemistry of the main classes of organic and biochemical compounds, with emphasis on their importance in health and foods. Topics include structure, nomenclature, physical properties, chemical properties and stereochemistry. (CHEM 1307)
- 1307 General Chemistry I (3-3-0)**
Prerequisites: Credit or enrollment in MATH 1301, and CHEM 1107, and one year of high school chemistry or CHEM 1305.
Fundamentals of general chemistry. Descriptive material is correlated with the basic chemical principles and their applications. Modern concepts of atomic and molecular structure, chemical bonding, the gaseous state and the kinetic molecular theory of matter are analyzed. Emphasis on stoichiometric calculations of mass and molar relationships, energy relations and intermolecular forces. Credit for both CHEM 1305 and CHEM 1307 may not be applied toward a degree. (CHEM 1311)
- 1308 General Chemistry II (3-3-0)**
Prerequisites: A grade of C or better in CHEM 1307 and credit or enrollment in CHEM 1108.
A continuation of CHEM 1307. Topics include liquids and solids, intermolecular forces, chemical kinetics, thermodynamics, homogeneous, heterogeneous and ionic equilibrium, modern concepts of acids and bases, electrochemistry, coordination chemistry, nuclear chemistry and selected topics. (CHEM 1312)
- 3110 Quantitative Analysis Laboratory (1-0-3)**
Prerequisite: Credit or enrollment in CHEM 3310.
Laboratory fee required. \$12.
Quantitative methods of analysis including gravimetric, volumetric and instrumental. Instrumental methods will include absorption and emission spectroscopy, gas and liquid chromatography and electrochemical analysis.

- 3130 Physical Chemistry Laboratory I (1-0-3)**
Prerequisite: Credit for or enrollment in CHEM 3330.
Laboratory fee required. \$12.
 Advanced experiments in physical chemistry including studies in thermodynamics, colligative properties of solutions, surface tension of surfactant containing solutions, solution viscosities, electrochemistry and the physical chemistry of polymeric materials. In addition to providing support for CHEM 3330, this course is designed to acquaint the student with the experimental approaches and laboratory techniques used in industrial research and development activities.
- 3132 Physical Chemistry Laboratory II (1-0-3)**
Prerequisite: Credit for or enrollment in CHEM 3332.
Laboratory fee required. \$12.
 A continuation of CHEM 3130.
- 3201 Organic Chemistry Laboratory I (2-0-6)**
Prerequisites: CHEM 1308/1108 and credit or enrollment in CHEM 3301.
Laboratory fee required. \$24.
 Experiments illustrating basic techniques, synthesis, interpretation of spectra, use of molecular models and scientific literature.
- 3202 Organic Chemistry Laboratory II (2-0-6)**
Prerequisites: CHEM 3301/3201 and credit or enrollment in CHEM 3302.
Laboratory fee required. \$24.
 Experiments illustrating multistep synthesis, semimicro techniques, instrumental analysis, investigation of reaction mechanisms and qualitative analysis.
- 3300 Undergraduate Research (3-0-9)**
Prerequisites: Approval by Natural Science advisor and a minimum GPA of 2.5, and permission of instructor.
 Independent investigation of a specific topic or problem in chemistry research under the direction of a selected faculty member.
- 3301 Organic Chemistry I (3-3-0)**
Prerequisites: CHEM 1308/1108 and credit or enrollment in CHEM 3201.
 Fundamentals of organic chemistry. Topics include: molecular orbital theory, stereochemistry, conformational analysis, reaction mechanisms, spectroscopy, nomenclature, physical properties, preparation and reactions of alkanes, alkyl halides, organometallics, alcohols and ethers.
- 3302 Organic Chemistry II (3-3-0)**
Prerequisites: CHEM 3301/3201 and credit or enrollment in CHEM 3202.
 A continuation of CHEM 3301, with emphasis on alkenes, alkynes, aromatic compounds, aldehydes, ketones, acids and derivatives, amines, amino acids, proteins, and carbohydrates.
- 3310 Quantitative Analysis (3-3-0)**
Prerequisites: CHEM 1308 and CHEM 1108 and credit or enrollment in CHEM 3110.
 A study of chemical equilibrium, reliability of measurements and the theory of applications of gravimetric, volumetric and instrumental methods of analysis.
- 3320 Environmental Chemistry (3-3-0)**
Prerequisites: BIOL 1302 and BIOL 1102; and CHEM 1308 and CHEM 1108.
 Chemistry and analysis of clean and polluted air and water. Environmental standards of the American Public Health Association and the U.S. Environmental Protection Agency.
- 3330 Physical Chemistry I (3-3-0)**
Prerequisites: CHEM 3301, MATH 2402 and one year of general physics.
 Applications of the first and second laws of thermodynamics to gases, liquids, solutions and phase equilibria; applications of the third law to systems at equilibrium; chemical rate processes; elementary kinetic theory; and Statistical thermodynamics with applications.
- 3332 Physical Chemistry II (3-3-0)**
Prerequisite: CHEM 3330.
 A study of the principles and theories for describing atomic and molecular structure and the experimental methods used for determining structure.
- 4140 General Biochemistry Lab I (1-0-3)**
Prerequisite: Credit or enrollment in CHEM 4340.
Laboratory fee required. \$12.
 Experiments in biochemistry to accompany CHEM 4340.
- 4162 Advanced Inorganic Laboratory (1-0-3)**
Prerequisite: Credit for or enrollment in CHEM 4362.
Laboratory fee required: \$12
 This laboratory course is designed to supplement CHEM 4362. It will involve experiments that demonstrate the principles of inorganic chemistry and the techniques used by inorganic chemists for the synthesis and characterization of inorganic materials.
- 4260 Environmental Laboratory and Field Studies (2-0-6)**
Prerequisites: credit for BIOL 1302/1102, CHEM 1308/1108, GEOL 1306/1106 and credit or enrollment in BIOL 4360, CHEM 3320 or GEOL 3303.
Laboratory fee required: \$24.
 Intensive laboratory and field investigations to illustrate principles and current concepts presented in BIOL 4360, CHEM 3320 and GEOL 3303 by sampling, measuring and analyzing biological, chemical and physical factors of select environments, with emphasis on the activities of humans and their effects on the ecosystem.
- 4310 Instrumental Methods of Analysis (3-1-6)**
Prerequisites: CHEM 3310/3110.
Laboratory fee required. \$24.
 Principles and applications of advanced instrumental methods of chemical analysis including UV-VIS, FT-IR, NMR, HPLC, GC/MS, and polarography. Major emphasis will be placed on the analysis of organic compounds.
- 4340 General Biochemistry I (3-3-0)**
Prerequisites: BIOL 1102 and BIOL 1302 and CHEM 3201 and CHEM 3301.
 Chemistry of the constituents of living matter, including carbohydrates, lipids, nucleic acids and proteins and their metabolism.
- 4342 General Biochemistry II (3-3-0)**
Prerequisite: CHEM 4340/4140.
 A continuation of CHEM 4340 with primary emphasis

on the integration and control of the metabolism of cellular constituents.

4360 Industrial Organic Chemistry (3-3-0)

Prerequisites: CHEM 3302/3202.

A survey of the chemistry and industrial processes used to obtain the seven major organic compounds that are used as starting materials in the chemical industry. Also included is the synthesis of related derivatives of these base chemicals, their properties and industrial applications.

4362 Advanced Inorganic Chemistry (3-3-0)

Prerequisites: Credit or enrollment in CHEM 3330, and/or CHEM 3310.

An introduction to modern inorganic chemistry including a survey of the descriptive chemistry of the elements and a detailed study of the technology involved in the production and use of the most industrially significant inorganic materials.

4364 Polymer Chemistry (3-3-0)

Prerequisites: CHEM 3302/3202.

A study of the chemistry and technology of polymeric materials including methods of polymerization, characterization and applications of polymers with an emphasis on structure-property relationships.

4380 Field Experience

Prerequisites: At least 60 semester credit hours and approval of department chair.

Selected students are placed in jobs in their local community which are related to and reinforce their academic training. Positions are full time, salaried and last the duration of a semester. May be repeated once for additional credit. Recommended for students not already employed in their area of study.

4399 Senior Honors Thesis

Prerequisites: Senior standing and enrollment in the Honors Program in the Natural Sciences.

A research project supervised by a member of the natural sciences faculty or a scientist at an affiliated research institution or laboratory. The completed research project must be presented in both written and oral form to the science faculty. No more than six hours credit for this course may be applied toward a degree.

6301 Selected Topics in Advanced Chemistry (3-3-0)

Prerequisites: Graduate Standing

Possible topics include thermodynamics and kinetics, chemistry of important biological reactions, properties and chemistry of polymers, and advanced investigative methods in chemistry.

College Success Program (CSP)

1101 College Success Program Course (1-1-0)

An introduction to college life. Topics include study skills, time management, university resources, library skills, and goal setting. Recommended for all new and returning students.

1301 Effective Learning Models (3-3-0)

An overview of how humans acquire, process, and

apply knowledge. Designed to provide entering and returning students the analytical and critical skills necessary for college success.

Communication (COMM)

1301 Voice and Diction (3-3-0)

Strongly recommended for students for whom English is a second language. Introduction to phonetics and methods of voice development. Acquiring good speech habits through individual analysis, tape recordings, guided practice, class drills, oral readings and vocabulary building. (SPCH 1342)

1302 Mass Media (3-3-0)

Prerequisite: ENG 1301

An introduction to mass communications, including the functions in society of newspapers, magazines, radio and television. (COMM 1307)

1303 Storytelling (3-3-0)

Students will develop skills in storytelling by examining the communicative elements essential to the storytelling event: teller, audience, purpose. Enhancing critical and creative thinking, developing language skills, improving listening, and better understanding and appreciating culture are among the topics to be covered in this performance-based course. Also included is storytelling as a teaching tool.

1304 Introduction to Speech Communication (3-3-0)

Prerequisite: READ 1300 or acceptable reading placement score.

An overview of skills important in developing effective communication. Students will gain experience in interpersonal, small group, and public communication. (SPCH 1311)

1305 Oral Interpretation of Literature (3-3-0)

Prerequisite: ENG 1301 or permission of instructor.

An introduction to the oral study of texts through performance of prose and poetry. Assists students in mastering theory and practice of performing and reading texts. Recommended for elementary education certification. (SPCH 2341)

1385 Communication in the Classroom (3-3-0)

Prerequisite: Enrollment in or credit for ENG 1301.

Communication behaviors for the classroom teacher and how those behaviors affect student learning. Discussion of theories and practice in self-concept, feedback, listening, disclosure and nonverbal communication. (SPCH 2320)

2307 Intercultural Communication (3-3-0)

Prerequisite: ENG 1302.

A study of the impact of culture on communication behaviors and the implication for cross-cultural interactions, both interpersonal and organizational.

2309 Interpersonal Communication (3-3-0)

A theoretical, practical and experiential introduction to interpersonal communication. Areas in communication apprehension, family communication, listening and communication in multiple contexts are discussed.

- 3301 Public Relations (3-3-0)**
Prerequisites: ENG 1302 and junior standing.
 A study of techniques and methods of public relations in promoting the images of organizations, corporations and institutions, both public and private.
- 3302 Argumentation and Debate (3-3-0)**
Prerequisite: COMM 1304 or permission of instructor.
 Theory and practice in argumentation and debate, including inductive and deductive reasoning, attitude change, use of evidence, fallacies, and beginning debate.
- 3303 Introduction to Advertising (3-3-0)**
Prerequisites: ENG 1302 and junior standing.
 History, theory and basic techniques of advertising, with special emphasis on the use of media in advertising campaigns and message development for media campaigns.
- 3304 Public Speaking (3-3-0)**
Prerequisite: COMM 1304 or 3306.
 A comprehensive examination of the preparation and presentation of various types of speeches. Types include: informative, persuasive, impromptu and ceremonial. Videotaping and in-depth student assessment are integral to the course.
- 3306 Business and Professional Speech Communication (3-3-0)**
Prerequisite: COMM 1304 or ENG 1302.
 Effective communication in a business and professional setting. Units include: interview, group decision making, informing, and persuading.
- 3308 Family Communication (3-3-0)**
Prerequisite: Three hours of COMM.
 Course reflects the trends in theory and practice in developing an understanding of the frameworks of communication as it relates to the family unit. Communication issues include intimacy, roles, power, decision-making, rules, quality dialogue and conflict.
- 3310 Women, Men and Communication (3-3-0)**
Prerequisite: Three hours of COMM.
 Course explores the theory and practice of communication between the sexes in personal relationships and professional contexts. The social construction of gender is also discussed.
- 3311 Writing for the Media (3-3-0)**
(Cross-listed as ENG 3333)
Prerequisites: ENG 1302 and either COMM 1302 or ENG 3302.
 Study and practice of writing techniques appropriate to print and broadcast media with emphasis on the relevance of these skills to managing media relations. Credit may not be earned for both COMM 3311 and ENG 3333.
- 3312 Writing for Presentation (3-3-0)**
(Cross-listed as ENG 3334)
Prerequisite: ENG 1302 and either COMM 1302 or ENG 3302.
 This course covers writing for the media employed for presentations in business, industry and the professions. Possible course focuses include videoscripting, speechwriting and writing for slide and multimedia presentations. Credit may not be earned for both COMM 3312 and ENG 3334.
- 3320 Communication Theory (3-3-0)**
Prerequisite: ENG 1301, ENG 1302, and 3 hours of COMM.
 This course focuses on theories of communication that help students to understand the issues affecting the field today. These theories help students understand people's daily interactions in various contexts
- 3330 Nonverbal Communication (3-3-0)**
Prerequisite: COMM 1304.
 Addresses how we communicate other than through the use of words. Topics will include body language (kinesics), use of space (proxemics), touch (haptics), and vocal variety.
- 3399 Directed Study in Communication**
Prerequisite: Formal approval by department chair and dean.
 Selected topics in the field; intensive individual study under the guidance of a member of the faculty.
- 4310 Communication in the Organization (3-3-0)**
Prerequisite: Three hours of COMM.
 Emphasis is placed on linking theories of organizational behavior and leadership to theories of human communication in dyadic, small group, presentational, and public contexts. Students have the opportunity to apply theories to real organizational settings by conducting diagnostic projects focusing on communication dynamics within the organizational setting.
- 4330 Communication Training and Development (3-3-0)**
Prerequisites: COMM 3306 or ENG 3302.
 Methods of training and development are explored as communication processes through which organizations help managers and employees improve performance and increase job satisfaction. Methods include discussion, simulation, programmed instruction, and multimedia presentation. Students learn skills required for designing a training program: assessing needs, interviewing, and writing the training proposal.
- 4380 Communication Field Experience**
Prerequisite: 60 hours toward degree and department approval.
 Placement of students in jobs involving areas in Communication Studies within the private and public sectors. Work may be paid or unpaid. Written reports, conferences with the instructor and other academic work are required. May be repeated once for credit.
- 4390 Issues in Speech Communication (3-3-0)**
Prerequisite: Three hours of COMM.
 The issues addressed in this course reflect current trends in speech communication. Possible topics to be offered in different semesters include: health communication, nonverbal communication, small group communication, training and development. With permission of department chair, may be repeated once for credit.
- 6301 Speech Communication for the Elementary School Teacher (3-3-0)**
Prerequisite: Graduate standing.
 An experientially-oriented course designed to explore

the theoretical and pragmatic rationale for using thoughtful communication strategies in the urban-centered elementary school classroom, with an emphasis on practical means of implementing those strategies effectively. Topics include voice and diction skills, public speaking, message structuring, discussion methods, cultural diversity, storytelling, active listening, and effective use of feedback.

6302 Speech Communication for the Secondary School Teacher (3-3-0)

Prerequisite: Graduate standing.

An experientially-oriented course designed to explore the theoretical and pragmatic rationale for using thoughtful communication strategies in the urban-centered secondary school classroom, with an emphasis on practical means of implementing those strategies effectively. Topics include conflict resolution, team building, leading a discussion, conducting an interview, structuring complex messages cultural diversity, communication apprehension, and feedback.

Computer Information Systems (CIS)

1301 Introduction to Computer Based Systems (3-3-0)

Prerequisite: MATH 1300.

An overview of computer information systems, including computer hardware, software, procedures and systems, and human resources and their application in today's technological society. (Does not satisfy degree requirements in Engineering Technology.) (COSC 1301)

2301 Computer Algorithms and Problem Solving (3-3-0)

Prerequisite: CIS 1301.

This course will examine the structure of program logic. Students will learn control logic, file handling, table logic, report structure, search techniques and program organization. (COSC 2390)

2303 Introduction to Business Application Programming (3-3-0)

Prerequisite: Grade of "C" or better in CIS 2301; may not be taken concurrently with CIS 2304.

An introductory course in program design and development. Students apply a structured, multi-phase program development process that features a series of steps involving understanding of a problem, formal problem definition, graphic design methodologies (particularly structure charts) and program specification through pseudocoding. Program design and development will be illustrated during this course by implementing code with a minimal set of structured COBOL. (COSC 1332)

2304 Intermediate Business Application Programming (3-3-0)

Prerequisite: A grade of C or better in CIS 2301; May not be taken concurrently with CIS 2303.

This is a course in developing programming skills to solve business application problem. In this course, students will write programs in C and C++, Visual Basic, or other appropriate object-oriented programming languages.

3301 Systems Analysis and Design (3-3-0)

Prerequisite: CIS 2301 and junior standing.

A study of systems thinking related to the system development life cycle. This course deals with traditional analysis, design and implementation through data flow analysis. The methods of analysis and design will be covered as well as data structures, data definition, normalization and system documentation. Credit will not be given for both CIS 2307 and CIS 3301.

3302 Management of Information Systems (3-3-0)

Prerequisite: CIS 1301 or equivalent; junior standing.

A survey course dealing with the managerial and technical environments within which Management Information Systems (MIS) exist in business organizations. The student is introduced to a wide range of topics pertaining to the business use of information systems technology, including systems development, computer operations and international systems used by modern multinational corporations.

3303 Computer Hardware, System Software and Architecture (3-3-0)

Prerequisite: Grade of C or better in CIS 2304 or CS 3330; junior standing.

This course presents a functional system level review of computing hardware and the organization of system components into architectural configurations. The principles of system software and its interaction with hardware will also be provided. In addition, a variety of operating systems internals and command languages will be covered.

3304 Microcomputer Applications in Business (3-3-0)

Prerequisites: CIS 1301 or CS 1305; junior standing.

An overview of computer applications, information needs in business and information systems. Microcomputer hardware and software applications also will be examined. The course reviews many software packages to support a microcomputer-based executive work station. Included are WEB development tools, electronic spreadsheets, file and database management systems and graphics packages.

3306 Data Files and Databases (3-3-0)

Prerequisites: Junior standing and grade of "C" or better in CIS 2303 or grade of "C" or better in CIS 2304

This course establishes a base of student knowledge in programming and systems development methods. Previous learning is placed in a context of database methods that have come to dominate the world of computer business applications. In keeping with this aim, the course stresses application development through fourth-generation programming techniques. Content of the course stresses basic knowledge in data structures, normalization of data, data modeling and database methods. Students should learn the construction of database schema.

3309 Computer Graphics in Business (3-3-0)

Prerequisites: CIS 1301 and junior standing.

Presents the needs and applications for graphics in business. Also covers developments such as laser printer, advanced display techniques and the principles of software packages that generate graphics. Hardware innovations, such as video imaging into computer

graphics systems, light pen, mouse and other input techniques are also covered.

3310 Decision Support Systems (3-3-0)

Prerequisites: CIS 1301 or equivalent; junior standing.

A study of how computers can be used as tools to assist management in problem solving and decision making. The course surveys traditional Decision Support Systems (DSS) technology and exposes the student to software packages used in DSS environments. Problem-solving techniques and decision-making models are presented.

3311 Programming Languages: Procedural, Nonprocedural and Fourth Generation (3-3-0)

Prerequisite: CIS 2301.

Students are guided in the development of programs and implementation of systems through the use of procedural, nonprocedural and fourth generation languages. The major strengths and weaknesses of each group in business systems applications are surveyed.

3312 CIS Communication, Reporting and Documentation Techniques (3-3-0)

Prerequisites: CIS 3301 and ENG 3302 or departmental approval.

A combination writing and speech course designed to sharpen the writing and speaking skills of the CIS specialist. The writing section of the course will include the documentation of the systems life cycle activities and the production of user, reference and training manuals. The speaking section of the course will include methods and techniques of presenting materials and information to large and small groups including the use of graphs, charts and narratives using overhead projectors and computer-generated materials.

3314 Social Impact of Information Technology for Business (3-3-0)

Prerequisite: CIS 1301 or equivalent computer literacy course; and Junior Standing

This course focuses on social issues of the new Information Age. Information technology proliferation is changing society in many important new ways. These changes impact how business will operate in the next millennium. Students will gain an understanding of these profound implications.

3319 Management of the Virtual Workplace (3-3-0)

(Cross-listed as ADM 3309)

Prerequisite: Junior standing or instructor approval
Management of the virtual workplace encompassing telecommuters, entrepreneurs, and virtual office workers. Techniques include the use of e-mail, computerized meetings, virtual office design, web page development, and other forms of telecommunication as they become available. Simulation conducted via the Internet with other on-line participants. Credit may not be earned for both CIS 3319 and ADM 3309)

3321 Graphical User Interface Development Using Visual Basic (3-3-0)

Prerequisite: A grade of "C" or better in CIS 3306

This course is designed as an introduction to programming Business applications using Microsoft's Visual

Basic. Topics covered include analysis, design, coding, testing, debugging, and implementing structured programs in MS Visual Basic design Environment while developing understanding of event driven programming.

3330 JAVA: A Graphical User Interface (GUI) (3-3-0)

Prerequisite: A grade of "C" or better in CIS 2301.

This is an introductory course in Graphical User Interface (GUI) concepts, design and programming using the JAVA programming language.

4301 Information Resource Planning and Management (3-3-0)

Prerequisites: CIS 3306 and MGT 3301.

An overview of corporate strategic, tactical and operational planning and control techniques and methodologies. Elements of information systems planning and control include facilities, equipment, technical specialization, training and project definition and priority setting.

4303 Strategic Information Systems (3-3-0)

Prerequisites: CIS 1301 or CS 1305 and junior standing.

This course emphasizes the use of computing and information technology for the strategic advantage of and issues involved in bringing advanced, computer-based technology and methods into the organization. Additionally, it covers the changing nature of the information technology profession as systems professionals are impacted by the use of strategic information systems.

4305 Management of Telecommunications Systems (3-3-0)

Prerequisite: CIS 3305.

This course is a continuation of CIS 3305. It deals with managing telecommunications technologies and focuses on techniques for planning, organizing, directing and controlling voice and data communications environments.

4309 Computer Control and Audit (3-3-0)

(Cross-listed as ACC 4309)

Prerequisites: CIS 1301 and ACC 2302, and junior standing.

A study of the skills, tools and procedures needed to effectively evaluate computer-based information systems controls. Concepts and techniques used in Information Systems Audits are examined from general, industry-specific and technological perspectives. Exposure to business impact analysis, risk analysis and disaster recovery analysis is provided with emphasis on varying requirements of the business community. Credit may not be earned for both CIS 4309 and ACC 4309.

4310 Advanced Computer Control and Audit (3-3-0)

Prerequisites: CIS 4309 and ACC 4308.

Continuation of CIS 4309/ACC 4308. A study of advanced techniques and procedures for auditing modern information systems technology in business situations. Students will be exposed to the processes of evidence collection and assessment of computing and networking technologies as well as the effective management of information resources in modern business. Course includes sections on managing the EDP audit function in business and governmental organizations.

4311 Computer Technology and the Future Seminar (3-3-0)

Prerequisites: CIS, CS or Applied Math major and senior standing.

This course will study, discuss and debate current issues and trends in the field of computer technology as it relates to business, government and society. The broader issues of the role of technology in the future of mankind are also expected.

4312 Systems Development Project

Prerequisites: A grade of C or better in CIS 3301, 3305, 3306, senior standing and successful completion of Junior Writing Proficiency Exam.

This is a capstone course. Emphasis is placed on the development of a computer application through life cycle methodology. In addition, students acquire additional knowledge in the specific concepts and skills of project management. Use of project management methods, project scheduling and control techniques, formal presentations and group dynamics in the analysis of information systems.

4313 Electronic Commerce (3-3-0)

Prerequisite: Junior standing and CIS 1301.

An overview of the technology and management issues relevant to business, intro-business, and business to business transactions. The economic model of electronic buying and selling.

4314 Electronic Commerce and Strategy (3-3-0)

Prerequisites: CIS 4313 and CIS 3306.

Utilizes the previously learned electronic model of buying and selling to explore the use of electronic media as innovative approaches for effective business strategy. In this advanced course, the highly dynamic and rapidly expanding area of electronic commerce shall be viewed from an organizational perspective. An essential element of this course will be the analysis of cases to develop web strategies and plans for the business organization.

4380 Field Experience (3-0-0)

For more information and qualifications see Field Experience in the College of Business section of this catalog and/or the department chair for your declared major.

4390 Special Topics in Computer Information Systems (3-3-0)

An investigation of the rapidly changing field of CIS, including such topics as: computers and society, micro- and minicomputers and computer simulation models.

Computer Sciences (CS)

1105 Technology for Education Lab (1-0-2)

Prerequisites: Credit or enrollment in CS 1305, or CS 1410, or CS 1408.

An introduction to authorware systems and presentation software for the development of interactive teaching materials and classroom presentations. Examples of computer-based instruction and tutoring systems will be discussed. The use of CS-ROM multimedia teaching materials will be introduced.

1305 Introduction to Computer Technology (3-3-0)

Prerequisites: MATH 1300 or placement by exam.

Topics include the history and nature of computers, ethical and other societal issues, an overview of computer

hardware and software (with an emphasis on computer applications and the use of standard software packages). The use of the Internet for communication and research is introduced. (COSC 1306 or COSC 1316)

1408 Introduction to Computer Science and FORTRAN (4-4-0)

Prerequisites: Credit or enrollment in MATH 1306 or MATH 1404; and placement in ENG 1301 or above.

History, nature and uses of the computer, algorithms and flowcharts, number systems and structuring, with an overview of computer hardware and software, computing systems and applications. Computer projects are run in the FORTRAN programming language. Closed labs on key topics will be conducted. (COSC 1417)

1410 CS I-Introduction to Computer Science with C++ (4-3-2)

Prerequisites: Credit or enrollment in MATH 1404 or MATH 1505 or MATH 1306; and placement in ENG 1301 or above

History, nature and uses of the computer; algorithms; number systems; information representation; and organization, with an overview of computer hardware and software, computing systems and major applications. Ethical and societal issues are discussed. An introduction to high-level languages with an emphasis on programming in C++. Control statements, subprograms, data types, arrays, and streams. Closed (supervised) laboratories are conducted on: an introduction to Microsoft Windows, and a C++ programming environment; appropriate programming exercises emphasizing top-down design methodology and simple and structured data types; and key topics of the discipline and areas of application. Designed as a first course for majors in Computer and Mathematical Sciences (COSC 1420)

2310 CS II-Introduction to Data Structures and Algorithms (3-3-0)

Prerequisites: "C" or better in CS 1410 and credit or enrollment in MATH 2401

Arrays, records (C++ structs), classes and data abstraction, object-oriented software development, pointers, dynamic data structures, linked structures, elementary and searching and sorting algorithms, recursion, and introduction to algorithm complexity analysis.

3300 Object-Oriented Programming and Concepts (3-3-0)

Prerequisites: "C" or better in: CS 2310.

Provides practical guidance on the construction of object-oriented systems. The Unified Modeling Language (UML) is used as a tool for analysis and design and the JAVA language is used for implementation. Key concepts of object-Oriented Programming methodology as discussed.

3304 Data and Information Structures (3-3-0)

Prerequisites: "C" or better in CS 2310 and MATH 2305.

Development of methods for organizing and processing data sets. Types of data structures analyzed include linear lists, stacks, queues, trees, and graphs. Algorithm analysis methods are used throughout to analyze the various data structures and algorithm design alternatives.

3306 Introduction to Theory of Computation (3-3-0)
(Cross-listed as MATH 3316)
Prerequisites: "C" or better in: CS 2310, MATH 2305 and MATH 2307.
An introduction to the modern theory of computing. Topics selected from the abstract algebra, finite automata, regular expressions, regular languages, pushdown automata, context-free languages, and Turing machines. The capabilities and limitations of abstract computing devices are investigated from a theoretical perspective. Credit may not be earned for both CS 3306 and MATH 3316.

3308 Numerical Methods (3-3-0)
(Cross-listed as MATH 3308)
Prerequisites: "C" or better in: CS 1408 or CS 1410, MATH 2307 and credit or enrollment in MATH 3301.
Develop and implement algorithms used in solving a variety of problems from science and engineering, including numerical solutions of linear systems of equations and nonlinear equations, curve fitting, approximation, numerical differentiation and integration, and numerical solutions of ordinary differential equations. Computer techniques are used in obtaining and analyzing numerical solutions. Credit may not be earned for both CS 3308 and MATH 3308.

3320 Introduction to Software Engineering (3-3-0)
Prerequisite: "C" or better in CS 3304
Provides the students with a theoretical, and a practical, understanding of the development of large software systems. The theoretical component is supported with readings, lecture, and discussion. The practical component consists of preparation of software systems using software engineering principles.

3330 Introduction to Geometric Modeling (3-3-0)
(Cross-listed as MATH 3330)
Prerequisites: A grade of "C" or better in Math 2403, Math 2307, and CS 2310.
Mathematical methods for the definition and manipulation of geometric shapes. Topics include Bezier curves and surfaces, B-spline curves and surfaces, Coons surfaces, Gordon surfaces, Gregory surfaces, tensor product forms, and subdivision methods. Applications of geometric modeling to computer animation, aircraft design, automobile design, and other areas will be discussed. Credit may not be earned for both CS 3330 and MATH 3330.

3399 Directed Study in Computer Science
Prerequisite: Approval of department chair.
Selected topics in computer science; intensive individual study under the guidance of a member of the Computer and Mathematical Sciences faculty.

3401 Introduction to Computer Organization and Assembly Language (4-3-2)
Prerequisites: A grade "C" or better in: CS 1410 or CS 1408
Organization of General purpose Computers; data representation and arithmetic, instruction sets and addressing modes; assembly language programming; computer arithmetic, program control structures; basic I/O operations, memory hierarchies. Laboratory assignments include assembly language programming.

3402 Digital Logic (4-3-2)
Prerequisites: "C" or better in: CS 2310, CS 3401 and MATH 2305.
Topics include: analysis and synthesis of combinational and sequential switching network; optimization methods using random logic gates, multiplexers, decoders, registers, counters, and programmable logic devices. Laboratory exercises involve the design and implementation of digital circuits. Emphasis is on the use of CAD tools in the design, simulation, and testing of digital circuits.

4294 Senior Seminar
(Cross-listed as MATH 4294)
Prerequisite: Advanced standing, ENG 3302, SPCH 1304, departmental approval and passing score on the writing proficiency exam.

An intense, structured seminar. Students are exposed to the world community as it relates to their major (involving a written and oral report on cultural issues as well as discussion of these topics); ethics is discussed as it relates to the subject. In addition, students prepare a written proposal for a senior project. Attendance at departmental colloquia is also required. Credit may not be earned for both CS 4294 and MATH 4294)

4301 Advanced Numerical Methods for Science and Engineering (3-3-0)
(Cross-listed as MATH 4301)
Prerequisites: MATH 3308, MATH 2403 and MATH 3301.

Advanced topics in numerical mathematics, including the numerical solution of ordinary and partial differential equations and advanced methods in numerical linear algebra. Programming projects are stressed that use the computer to solve physical and engineering problems. Credit may not be earned for both CS 4301 and MATH 4301. This course may be used as a W-course with additional prerequisites of CS 4294, ENG 3302 and SPCH 1304.)

4302 Computer Systems Architecture (3-3-0)
Prerequisites: "C" or better in CS 3402.
Main topics in general-purpose computer architectures, including CPU organization, instruction set design with case studies from RISC and CISC architectures, control unit design, hardwired and microprogrammed pipelined and parallel execution; memory hierarchy and technology, virtual, cache and interleaved memory; input/output systems. Parallel architectures, including superscalar processors, vector processors and multi-processor architectures.

4303 Programming Language Concepts (3-3-0)
Prerequisite: "C" or better in CS 3304.
Provides a foundation in the concepts and implementation of modern programming languages. Imperative, functional, logic, and object-oriented programming paradigms are covered.

4305 Compiler Design and Construction (3-3-0)
Prerequisites: CS 3306 and CS 4303.
Analysis of compilers including language structures, translation, storage allocation and execution. The following specific topics are considered: compilation of

simple expressions and statements; compiler organization with symbol tables, syntax scan, object code generation, error diagnostics, object code optimization and overall design; interpreters.

4306 Mathematical Models and Computer Simulation (3-3-0)
(Cross-listed as MATH 4306)

Prerequisites: MATH 3302 or MATH 3310; and CS 1408 or CS 1410.

Quantitative modeling of industrial systems, computer simulation languages; discussion of problems encountered in constructing simulation programs. Credit may not be earned for both CS 4306 and MATH 4306. This course may be used as a W-course with additional prerequisites CS 4294, ENG 3302 and SPCH 1304.

4310 Principles of Computer Graphics (3-3-0)

Prerequisites: CS 2310 and MATH 2307

Analytical treatment of computer graphics; input, transformation and display of graphical data; graphical algorithms and languages; emphasis on current developments.

4312 History of Applied Mathematics (3-3-0)

(Cross-listed as MATH 4312)

Prerequisites: MATH 2401 or MATH 1306 and department approval

The course traces the development of mathematics and its applications from the Greek mathematicians through the modern age including the development of computer techniques in applied mathematics. Credit may not be earned for both CS 4312 and MATH 4312. This course may be used as a W-course with additional prerequisites CS 4294, ENG 3302 and SPCH 1304.

4315 Operating Systems (3-3-0)

Prerequisites: "C" or better in CS 3304 and CS 3306.

Basic concepts of operating systems including concurrent process management, I/O device management, and storage management (virtual memory and file systems). UNIX/WindowsNT serve as standard examples.

4318 Theory of Database and File Structures (3-3-0)

Prerequisites: CS 3304 and CS 3306.

An introduction to the theory of database and file structures with an emphasis on general principles and algorithmic issues as well as a conceptual overview of the design, construction and maintenance of database and file processing systems. After the various models are considered, specific attention is given to advanced topics such as data integrity, optimization and distributed environments.

4320 Software Engineering (3-3-0)

Prerequisites: CS 3320.

Software engineering and design considerations, including software design, definition, representation techniques and methodologies.

4322 Theory of Algorithms (3-3-0)

Prerequisites: CS 3304 and CS 3306.

Detailed study of the main algorithmic techniques of computer science (e.g., sorting and searching) and analysis of the operating characteristics and complexity of selected algorithms.

4325 Computer Network Architecture (3-3-0)

Prerequisites: CS 3402.

Architectures and operating systems of distributed networks including data communication, local networks, public networks and design alternatives.

4328 Parallel Computing (3-3-0)

(Cross-listed as MATH 4328)

Prerequisites: "C" or better in CS 2310 and CS/MATH 3308

Introduces fundamental concepts of parallel computers and parallel/distributed computation. A semester project involving parallel algorithm design, software implementation and results analysis to solve scientific and/or engineering application problems in parallel will be assigned. Credit may not be earned for both CS 4328 and MATH 4328. This course may be used as a W-course with additional prerequisites of CS 4294, ENG 3302 and SPCH 1304.

4330 Concepts of Artificial Intelligence and Knowledge Systems (3-3-0)

Prerequisites: CS 3304 and CS 3306.

Primary topics in artificial intelligence including problem representation, knowledge representation, cognition models, natural language, search methods, automated deduction and applications.

4333 Theory and Applications of Neural Nets (3-3-0)

(Cross-listed as MATH 4333)

Prerequisites: A grade of "C" or better in MATH 2307, MATH 2403, and CS 2310.

Introduction to basic concepts of neural networks used in supervised and unsupervised learning. Several learning rules and algorithms will be presented along with applications. Credit may not be earned for both CS 4333 and MATH 4333.

4334 Fuzzy Logic: Theory and Applications (3-3-0)

(Cross-listed as MATH 4334)

Prerequisite: A grade of "C" or better in CS 2310 and Math 2307.

This course will cover important ideas in the theory and applications of Fuzzy Logic as operations on fuzzy sets, alpha cuts, possibility measure, ruled based computations, associative memories and other topics as time permits. Credit may not be earned for both CS 4334 and MATH 4334.

4335 Seminar in Knowledge Engineering (3-3-0)

Prerequisites: SPCH 1304, ENG 3302, senior standing in computer science or knowledge engineering, and departmental approval.

Consideration of various emerging issues in knowledge engineering, including case studies, new hardware and software technology, ethics and current literature content. (CS 4335 may be repeated for credit with the approval of the department chairman.)

4380 Field Experience

Prerequisites: At least 60 semester hours and approval of department chair; "B" or better in CS 3304, 3306 and 3402.

Selected students are placed in jobs in the local community which are related to and reinforce their academic training. Positions are full time, salaried and last the

duration of a semester. Recommended for students not already employed in their area of study.

- 4390 Selected Topics in Computer Science (3-3-0)**
Prerequisite: Department approval.
Intensive study of one or more major topics in computer science, especially with respect to a new or emerging area. Course may be repeated for credit with department approval.
- 4395 Senior Project in Computer Science**
(Cross-listed as MATH 4395)
Prerequisites: "B" or better in CS 4294; and SPCH 1304 and ENG 3302; senior standing and department approval. Required GPA of 3.0 or better.
Intensive study under the guidance of a member of the Computer and Mathematical Sciences faculty which culminates in an individually researched and formally written report and oral presentation dealing with the applications of computer science in the student's area of specialization and related to one type of business or industry in the Houston area. Credit may not be earned for both CS 4395 and MATH 4395.
- 4396 Senior Thesis**
Prerequisite: formal approval of department chair and the student's advisor for CS 4395.
Intensive study under the guidance of a member of the Computer and Mathematical Sciences faculty which continues and expands the research carried out in CS 4395. A formal written report and oral presentation will be required.
- 4399 Directed Study in Computer Science**
Prerequisite: Formal approval of department chair and dean.
Selected topics in computer science. Intensive individual study under the guidance of a member of the Computer and Mathematical Sciences faculty.

Criminal Justice (CJ)-Undergraduate

- 1301 Crime, Law and Society (3-3-0)**
Prerequisite: Completion or co-enrollment in ENG 1301.
An overview and description of the criminal justice system is presented, including its goals, its relationship to other governmental bodies and its relationship to society. Also included is the study of the basic components of the criminal justice system. (CRIJ 1301)
- 2301 The Police System (3-3-0)**
Prerequisite: CJ 1301.
An overview of philosophical and ethical issues surrounding the role of police in a democratic society. (CRIJ 2328)
- 2302 The Criminal Court System (3-3-0)**
Prerequisite: CJ 1301.
The history, philosophy and basic concepts of the legal system are studied. The criminal justice legal process from inception to appeal is also presented. (CRIJ 1306)
- 2303 The Correctional System (3-3-0)**
Prerequisite: CJ 1301.
The historical and philosophical development of the correctional system is examined. The role of correctional agencies, their personnel and their relationship to the criminal justice system is emphasized. (CRIJ 2313)
- 3300 Research Methods in Criminal Justice (3-3-0)**
Prerequisites: CJ 1301, CJ 2301, CJ 2302, CJ 2303.
Introduction to the design and implementation of research in the field of criminal justice. The principles of research methods and design for use in policy analysis, content analysis and analysis of secondary data will be presented. Considerable attention will be given to the application of design and implementation as it relates to criminal justice within a real world context.
- 3301 Criminology (3-3-0)**
Prerequisites: CJ 1301, PSY 1303 or SOC 1303.
An overview of criminal behavior, its impact on the criminal justice system and theories of criminal behavior are presented.
- 3302 Criminal Investigation (3-3-0)**
Prerequisite: Completion of Criminal Justice core.
The history and theory of criminal investigation, investigative procedures, conduct at the crime scene, collection and preservation of evidence and problems of successful prosecution are studied. The law and procedure affecting case preparation and presentation are emphasized.
- 3304 Criminal Law (3-3-0)**
Prerequisite: Completion of Criminal Justice core.
This course examines the elements of the various specific crimes against persons and property, along with associated legal concerns. General legal principles are studied and related to the Texas Penal Code.
- 3305 Criminal Evidence and Procedure (3-3-0)**
Prerequisite: Completion of Criminal Justice core.
Laws of evidence and procedure are studied through examination of case law and the Texas Code of Criminal Procedure. Emphasis is given to the rules governing admissibility of various classes of evidence, as well as their exceptions.
- 3306 Crime and Delinquency (3-3-0)**
Prerequisite: Completion of Criminal Justice core.
Delinquent behavior and the role and responsibility of the criminal justice system in controlling delinquency are examined. Special emphasis is placed on social problems contributing to delinquency as well as current treatment methods.
- 3307 Community Oriented Policing (3-3-0)**
Prerequisite: Completion of Criminal Justice core.
The nature of the community and its impact on the police is explored. Those factors that contribute to conflict and inhibit police-community relations are studied in order to discover how the police and the community can achieve a more cooperative relationship.
- 3308 Juvenile Justice System (3-3-0)**
Prerequisite: Completion of Criminal Justice core.
The history, philosophy and role of the juvenile court with emphasis on jurisdiction, treatment, criminal proceedings and the family court is presented.

- 3309 Security and the Law (3-3-0)**
Prerequisite: Completion of Criminal Justice core.
 The functional aspects of security investigation and the legal restrictions placed on non-governmental related activities are presented. These include industrial, commercial, campus and private security entities.
- 3311 Ethics of Social Control (3-3-0)**
Prerequisite: Junior or senior standing, or permission of instructor.
 This course explores the role of law in controlling behavior, examines questions of individual responsibility and governmental authority and covers professional ethics in law, corrections and law enforcement.
- 3312 Institution-Based Corrections (3-3-0)**
Prerequisite: Completion of Criminal Justice core.
 This course is a comprehensive examination of the history, philosophy and management of prisons. The effectiveness of jails and prisons for the purposes of retribution, incapacitation, deterrence and rehabilitation is evaluated.
- 3313 Community-Based Corrections (3-3-0)**
Prerequisite: Completion of Criminal Justice core.
 The history, philosophy and legal authority of community correctional alternatives is presented. Community corrections include probation, parole, fines, diversion, restitution, community treatment centers, work/study release centers and half-way houses.
- 3316 Victimology (3-3-0)**
Prerequisite: Junior standing.
 Examines the role of the victim in the criminal process. Emphasis is given to victims' rights and responsibilities)
- 3317 Race and Crime (3-3-0)**
Prerequisite: Junior standing.
 Examines impact of race on victimization, criminal behavior and type and seriousness of legal sanctions. Emphasis is given to disproportionate representation of minorities in the criminal justice system.
- 3318 Sex Crimes (3-3-0)**
Prerequisite: Completion of Criminal Justice core.
 Examines sexual activities prohibited by law with special attention given to activities of rape, prostitution, homosexuality, abortion issues, pornography, some serial murders, and juvenile related offenses. Emphasis will also be given to causative factors and societal attitudes concerning these crimes and others which have a sexual orientation.
- 3319 Legal Research (3-3-0)**
Prerequisite: Junior standing.
 Study of the principles of legal problem solving using research materials available in a law library. Students will be introduced to various legal texts, Shepard's citations, statutes[PE1], case reporters. Assignments involve practical research applications.
- 3320 Statistics in Criminal Justice (3-3-0)**
Prerequisite: CJ3300 or departmental approval and MATH 1301 or 1310.
 Introduction to data analysis in criminal justice. Emphasis will be placed on the application of quantitative measures to the study of the prevention, interdiction and suppression of criminal behavior. The course will examine both descriptive and inferential statistics. In addition, students will be introduced to data analysis through the use of statistical computer software.
- 4301 Police Management (3-3-0)**
 Traditional and contemporary police organization, management and administration methods and theories are reviewed and analyzed. Special emphasis is given to planning, supervision and policy development.
- 4302 Organized Crime (3-3-0)**
Prerequisites: Senior standing and completion of Criminal Justice core.
 A historical survey is made of organized crime including basic knowledge of the organizational function and structure of crime. Societal factors, preventive techniques and control systems are stressed.
- 4303 Vice, Drugs and the Law (3-3-0)**
Prerequisites: Senior standing and completion of Criminal Justice core.
 The historical, philosophical and legal aspects of vice activities and drugs is examined. An analysis is made of the reactions of the police and society to victimless crime. The classification, description and extent of the drug problem is surveyed.
- 4305 Correctional Counseling (3-3-0)**
Prerequisite: CJ 3312.
 An introduction to the philosophy and objectives of counseling. The prison is viewed as a community and the group counseling process in this setting is given special attention. Problems relating to custody and treatment are examined.
- 4307 Legal Rights of the Convicted (3-3-0)**
Prerequisite: CJ 3312.
 A comprehensive analysis of the legal rights of prisoners, probationers and parolees derived from case law, statutes and constitutional principles on both state and federal levels.
- 4310 Criminal Court Administration (3-3-0)**
Prerequisite: Completion of Criminal Justice core and 3 additional hours in law-related course work.
 The role of the criminal court manager is explored. The organization, structure and operations of criminal courts are examined through the application of principles of supervision, management and human relations.
- 4311 Security Management (3-3-0)**
Prerequisite: CJ 3309 or CJ 3315.
 The organization, administration and management of the security function is examined from the perspective of efficiency and effectiveness. This course surveys organizations in business, industry and government. Particular emphasis is placed upon policy and decision-making, training, personnel development and budgeting.
- 4312 Research Topics (3-3-0)**
Prerequisites: Criminal justice major, senior standing and department approval.
 This course provides a unique opportunity for the criminal justice major to conduct in-depth research into an area of the student's field of interest. A major paper is required.

Criminal Justice (CJ)-Senior/Graduate

No more than six hours of the following courses may be taken as undergraduate credit by senior CJ majors. Department approval is required.

- 4313 International Criminal Justice (3-3-0)**
Prerequisites: Criminal justice major and senior standing.
Examines and analyzes the structure and operation of various criminal justice systems from an international perspective.
- 4314 Women and the Criminal Justice System (3-3-0)**
Prerequisites: Criminal justice major and senior standing.
Provides an in-depth look at women's participation in three areas of criminal justice-as offenders, as victims and as criminal justice professionals.
- 4370 Senior Seminar in Criminal Justice (3-3-0)**
Prerequisites: Criminal Justice major and senior standing.
Students will address current issues in criminal justice. Analytical skills to frame the problem and suggest solutions will be stressed. The oral and written presentations in class will emphasize problem solving techniques and analysis. Ethical, political and social issues that impact criminal justice research will also be examined.
- 4380 Field Experience**
Prerequisites: Criminal justice major, junior standing, 2.5 GPA and departmental approval.
Selected students are placed in criminal justice agencies for 120 hours, applying academic training to practical situations. Recommended for criminal justice majors who are not employed in the criminal justice system. Practitioners, however, may apply for an internship in an area of criminal justice other than the one in which they normally function.
- 4390 Special Topics in Criminal Justice (3-3-0)**
Prerequisites: Criminal justice major and senior standing.
Selected topics or current issues in criminal justice, taught by faculty, visiting lecturers or others who possess a special area of expertise.
- 439A Domestic Terrorism (3-3-0)**
Prerequisite: Senior standing.
This course will examine the development, organization and activities of the various groups that have been labeled as threats to state and national security. Special attention will be given to their disproportionate impact on the American Criminal Justice System.
- 439B Seminar in Criminal Justice Films (3-3-0)**
Prerequisite: Senior standing.
This course examines the substance contributions of films, a familiar aspect of American culture, to citizen attitudes and stereotypes about the criminal justice system, criminology and the law.
- 4680 Field Experience**
Prerequisites: Criminal justice major, junior standing, 2.5 GPA and departmental approval.
Selected students are placed in criminal justice agencies for 240 hours, applying academic training to practical situations. Recommended for criminal justice majors who are not employed in the criminal justice system. Practitioners, however, may apply for an internship in an area of criminal justice other than the one in which they normally function.

- 5360 Security and Crisis Management: Theories and Practices (3-3-0)**
Prerequisites: CJ 1301, CJ 2301; CJ 2302, CJ 2303, senior/graduate standing.
The management of the security function is examined through the study of management strategies and case studies. Discussions and research will include policies and procedures, fiscal management, audits and surveys and organizational structures and operations and crisis management.
- 5361 Public Information Resources (3-3-0)**
Prerequisites: CJ 1301, CJ 2301; CJ 2302, CJ 2303, senior/graduate standing.
This course is an extensive survey and evaluation of the various sources of information most useful to private and public sector investigations. Special attention is given to analysis of resources available outside governmental agencies. Investigative techniques utilizing these resources are compared and evaluated.
- 5362 Risk Analysis and Abatement (3-3-0)**
Prerequisites: CJ 1301, CJ 2301; CJ 2302, CJ 2303, senior/graduate standing.
This course surveys a variety of procedures, programs and policies used to form a strategic business security plan to neutralize an organization's vulnerabilities and measure the effectiveness of its security. Strategies to prevent and reduce risks inherent in the private business sector will be discussed and analyzed.
- 5370 Seminar in Violent and Serial Crime (3-3-0)**
Prerequisites: CJ 1301, CJ 2301; CJ 2302, CJ 2303, and 12 hours of upper level CJ, senior/graduate standing or post baccalaureate status.
This course explores the incidence and patterns of violent and serial crime. Particular attention is given to the characteristics and features of each type of violent or serial crime (e.g., homicide, robbery, rape, arson, and bombing) and the unique investigative strategies that are applicable to this type of crime. Included in this course are discussions of modus operandi, signature analysis, linkage blindness and linkage analysis.
- 5372 Criminal Profiling (3-3-0)**
Prerequisite: CJ 5370
This course is designed to introduce students to the investigative strategy of criminal profiling. Forensic psychology; psychopathology; and offender typologies across various serial/violent crimes topics will be discussed. Considerable time will be spent reviewing the research on violent/serial offenders and profile analysis.
- 5373 Quantitative Geography and Geographic Information Systems (3-3-0)**
Prerequisites: CJ 1301, CJ 2301; CJ 2302, CJ 2303, CJ 3320 and 12 hours of upper level CJ, senior/graduate standing or post baccalaureate status.

This course is designed to introduce students to geographic information systems and the use of quantitative methods in order to further police investigations. During the course, students will be introduced to the following topics: maps and cartography, quantitative geography (centrography), point pattern analysis, and criminal geographic targeting software.

5374 Geographic Profiling (3-3-0)

Prerequisites: CJ 5370, CJ 5373 and CJ 6321

The course is designed to introduce students to geographic profiling as a strategic information management strategy for the support of violent/serial crime investigations. The following topics will be discussed: environmental criminology, environmental psychology, routine activity theory, rational choice theory, Brantingham and Brantingham Theory (geometry of crime), and crime sit distinctions (EAMD). Considerable time will be devoted to exploring the geography of crime research.

Criminal Justice (CJ)-Graduate

6310 Issues in Criminal Justice (3-3-0)

Prerequisites: Graduate standing or department approval

An analysis of the current issues facing the criminal justice system.

6311 Legal Liabilities in Criminal Justice (3-3-0)

Prerequisites: Graduate standing or department approval

An examination of legal liabilities facing criminal justice management in their relations with human resources/personnel, their clients/offenders, and the public.

6312 Law and Society (3-3-0)

Prerequisites: Graduate standing or department approval

An inquiry into selected current legal issues such as gun control legislation, asset forfeiture law, the prison reform legislation act, domestic violence legislation, sex offender legislation, death penalty legislation, etc.

6313 Issues in Corrections (3-3-0)

Prerequisites: Graduate standing or department approval

Examines current issues in institutional and community corrections with emphasis on comparisons of control versus rehabilitation strategies, lack of strategic planning and public policy development.

6314 Issues in Law Enforcement (3-3-0)

Prerequisites: Graduate standing or department approval

This course will focus on the long term, intractable problems in policing, particularly in urban areas. Endemic issues that affect the limits and potential of mainstream policing will be examined including an analysis of emerging critical issues and a critical assessment of the philosophy and politics of community policing.

6320 Research Design and Methods (3-3-0)

Prerequisites: Graduate standing or department approval
Includes the scientific method, basic social science

research design and execution, and evaluation of contemporary research in criminal justice. Topics covered include the logic of causal order, the logic of inference, sampling theory, qualitative and quantitative research design, data collection, and model specification. Prepares students to critically appraise reported research, and to design and conduct independent research projects.

6321 Quantitative Analysis in Criminal Justice (3-3-0)

Prerequisites: Graduate standing or department approval

The use of descriptive and inferential statistics and computer applications as used in criminal justice research.

6322 Program Evaluation (3-3-0)

Prerequisites: Graduate standing or department approval

Evaluation research is the systematic application of social research procedures for assessing the conceptualization, design, implementation, and utility of social intervention programs. The purpose of this course therefore, is to acquaint the student with theories and techniques which will prepare students to make these research applications in the context of "live" ongoing programs or projects.

6323 Communications and Technology in Criminal Justice (3-3-0)

Prerequisites: Graduate standing or department approval

This course will acquaint students with various computer software programs and their application to CJ. The purpose of the course is to equip students with the ability to take research data, analyze it in SPSS, chart it, import it into MS Word, and prepare a computerized slide show presentation of the results on MS PowerPoint.

6330 Advanced Criminology (3-3-0)

Prerequisites: Graduate standing or department approval

History of criminological thought, etiology of criminal behavior, and analysis and evaluation of contemporary criminological theories.

6333 Violence in America (3-3-0)

Prerequisites: Graduate standing or department approval

A survey of violence in past and present American society with an emphasis on theoretical perspectives and possible future trends.

6340 Administration in Criminal Justice (3-3-0)

Prerequisites: Graduate standing or department approval

Surveys the relationship between worker productivity and personnel/management policies in criminal justice organizations. Examines the workplace application of theories of learning, personality, cognitive processes, group dynamics and communications.

6342 Correctional Programming (3-3-0)

Prerequisites: Graduate standing or department approval

Examines the development, management and assessment of the various types of non-security programs within correctional settings. Facilitates the understanding of dynamics of rehabilitation of offenders, as well

as the group dynamics of institutions designed to work with delinquent populations.

6350 Criminal Justice Policy Analysis (3-3-0)

Prerequisites: Graduate standing or department approval

A study of the process by which public policy decisions are selected and developed in political environments for implementation in the criminal justice system. This course requires the student to identify and explain the motives, goals, tactics, and strategies of the parties involved in current policy issues.

6360 Special Topics (3-3-0)

Prerequisites: Graduate standing or department approval

Seminar for advanced students offered in response to student request and faculty interest. May be repeated for additional credit when course content differs. Sample topics include the death penalty, family violence and disputes, hate crimes, inmate social organization, prison gangs, etc.

6370 Independent Studies

Prerequisites: Graduate standing or department approval

Intensive study of a subject that the student cannot normally pursue in a regularly scheduled course. Supervised independent or group studies for advanced students. May be repeated for additional credit with faculty approval.

6390 Thesis I

Prerequisite: Completion of coursework.

This course represents a student's initial thesis enrollment. No credit is awarded until the student has completed the thesis.

6391 Thesis II

Prerequisite: Completion of Thesis I.

This course represents a student's continuing enrollment. The student continues to re-enroll in this course until the topic is approved by the thesis committee.

Drama (DRA)

1301 Introduction to the Theater (3-3-0)

Prerequisite: RDG 1300 or acceptable reading placement score.

Topics examine the five essential elements of theater: the audience, the actor, the script, the production and the physical theater. Attendance at plays required; no acting included. (DRAM 1310)

1303 Acting I (3-3-0)

Basic concepts of acting (including improvisations, elements of characterization, role playing and scene production) through class presentations, attendance at plays, personal contact with professional actors and viewing films. (DRAM 1351)

1304 Acting II (3-3-0)

Prerequisite: DRA 1303 or permission of instructor. Concentration on advanced concepts of acting, audi-

tioning, improvisations, characterizations, pantomime, voice development and scene presentation. Performance in university productions required. (DRAM 1352)

1305 Stagecraft I (3-3-0)

An introduction to the basic aspects of scenery and lighting, including elementary construction techniques, types and kinds of lighting instruments and equipment, various building materials and the operation and care of tools and machinery.

1306 Stagecraft II (3-3-0)

Prerequisite: DRA 1305 or permission of instructor.

A continuation of Stagecraft I, focusing on more advanced technical and construction work and equipment operation.

2301 Stage Design (3-3-0)

Prerequisite: ENG 1301

Examines the history and development of stage scenery and lighting. Includes consideration of design principles and techniques in each area as well as materials and tools used. Also looks at notable scenic and lighting designers from the past and present.

3303 Theater: Greek to Elizabethan (3-3-0)

(Cross-listed as HUM 3315)

Prerequisite: ENG 1301.

World theater from its beginnings to the 18th century, including theater architecture, staging and costuming practices, plays and playwrights and social and political forces affecting the theater. Credit may not be earned for both DRA 3303 and HUM 3315.

3304 Theater: Elizabethan to Modern (3-3-0)

(Cross-listed as HUM 3316)

Prerequisite: ENG 1301.

World theater from the 18th century to the present. Credit may not be earned for both DRA 3304 and HUM 3315.

3332 Stage Directing (3-3-0)

Prerequisites: DRA 1301 and DRA 1303 or DRA 1304.

An examination of the principles and practices of directing live theater. Concentration on such directorial responsibilities as play selection, casting, script analysis, rehearsal scheduling, character development and blocking techniques. Course culminates in the public presentation of a short dramatic performance. Course may be repeated once for credit.

4390 Selected Topics in Theatre (3-3-0)

Prerequisite: ENG 1302 and junior standing.

An in-depth examination of selected aspects of theatre including, but not limited to: playwrighting; directing; dramatic criticism; the contributions of a particular playwright, or group of playwrights; and historical trends and group contributions to the evolving theatre scene. May be repeated for credit with approval when topic varies.

Economics (ECO)

1301 Introduction to Economics (3-3-0)

Prerequisite: ENG 1301.

Combines microeconomics and macroeconomics in one

semester. A non-technical examination of economic theories, programs, and policies. The primary objective in this course is to develop an interest and appreciation for the relevance of economic analysis.

2301 Principles of Economics I (3-3-0)

Prerequisite: MATH 1301 or MATH 1310.

Principles of macro-economics. Topics include structure of the U.S. economy, national income determination and the application of monetary and fiscal policies. Also includes analysis of international trade and finance.

2302 Principles of Economics II (3-3-0)

Prerequisite: MATH 1301 or MATH 1310.

Principles of micro-economics, with major emphasis on price and income distribution theory. Topics include demand theory, competition, oligopoly and monopoly, marginal productivity theory, international trade, and international finance. (ECON 2302)

3301 Natural Resources and Environmental Economics (3-3-0)

Prerequisites: ECO 2302 and junior standing.

The economics of non-renewable resource extraction, the economics of pollution control, the application of cost-benefit analysis to the environment and the economics of sustainable development.

3302 Managerial Economics (3-3-0)

Prerequisites: ECO 2302 and junior standing.

Application of micro-economic theory to important business decision-making. Analytical methods in production, cost, demand, marketing and pricing. Regression analysis applied to test and to estimate empirical models.

3303 Economics of Industrial Organization (3-3-0)

Prerequisites: ECO 2302 and junior standing.

A survey of market structures and market performance as well as the role of government regulations and antitrust policy in different sections of the economy. Emphasis is placed on methods and techniques used in measuring market structures and performance. Public regulation is considered in both theory and practice.

3305 Economics of Government Finance (3-3-0)

Prerequisites: ECO 2301, ECO 2302 and junior standing.

This course emphasizes the theories and techniques which enable students to evaluate the role of government in modern economy more objectively. The course reviews theories of public expenditures and taxation. It also critically evaluates major U.S. government expenditure programs and tax policies.

3307 Intermediate Macroeconomics (3-3-0)

Prerequisite: ECO 2301.

In depth and comprehensive analysis of macroeconomic theories and policies with real world applications. Alternative theories are evaluated using the IS/LM and the AD/AS models. The policy differences of these theories are critically examined. Topics include Business cycles, unemployment, inflation, interest rates, deficits and debts, economic growth, and Monetary and fiscal policies. Macroeconomic issues in the context of today's global economy are also explored.

3309 Intermediate Microeconomics (3-3-0)

Prerequisite: ECO 2302.

Comprehensive analysis of micro economic theories, policies, and applications will be undertaken. Topics include an analysis of the market system, marginal analysis and optimization behavior, consumer choice, production and cost, market structure models, resource markets, externalities, public choice, distribution theories and welfare economics.

3310 Current Economic Issues (3-2-0)

This course surveys current economic issues facing the U.S. and the World. It achieves this objective by discussing policy options and analyzing their implications. Issues to be covered include pollution and environment, inflation and unemployment, poverty, crime, education, health care, global interdependence, and others which arise from time to time. (Students may receive 3 hours credit with approval of department chair.)

3399 Directed Studies in Economics (3-0-0)

Prerequisite: Approval of department chair and dean. Selected topics in economics; intensive individual study under the guidance of a member of the economics faculty.

4301 Business Fluctuations and Forecasting (3-3-0)

Prerequisites: ECO 2301, Grade of C or better in MATH 3309 and junior standing.

Combines macro-economic theory and quantitative methods to develop an understanding of the causes of business cycles. Use of economic indicators, time series analysis and multiple regression analysis with macro-economic data sets with appropriate computer software to model and forecast economic activity.

4303 International Economics (3-3-0)

Prerequisites: ECO 2301, ECO 2302 and junior standing.

This course focuses on the principles of foreign trade and covers theories concerning the reasons for trade. The course examines the monetary and real aspects of international trade and includes analysis of foreign exchange markets and balance of payments problems.

4307 Health Economics (3-3-0)

Prerequisites: ECO 2302 and junior standing.

A study of demand and supply in the medical services industry. Specific issues include markets for medical education, health insurance, hospital care, physicians and nurses. The role of government in health and medical care such as medicare, medicaid and national health insurance is discussed.

4309 Economic Development (3-3-0)

Prerequisites: ECO 2301 and junior standing.

Examines economic development theories, policies and practices of developing countries with particular emphasis given on the nature, causes and possible solutions to the problems of developing countries. Also examines the relationship between developed and developing countries in such areas as trade, capital flows, and labor migration.

5331 Economic Processes (3-3-0)

Prerequisites: Graduate standing, ENG 1301.

An intensive summary of basic micro- and macroeconomic theories as applied to business.

Education - Undergraduate (BED, ECH, EED, ETC, PED, READ, SED, SOSE)

Bilingual Education (BED)

- 3301 Understanding the Second Language Learner (3-3-2)**
Field-based course that provides an understanding of developmental, environmental, and cultural, factors that affect second language learners.
- 3311 Foundations of Bilingual/ESL Education (3-3-0)**
Field-based course that examines and applies the rationale, goals, and objectives of bilingual/ESL programs through interaction with urban students and teachers in a bilingual/ESL classroom.
- 4301 Teaching Language Arts and Reading in Spanish (3-3-0)**
Field-based course that applies language arts and reading techniques in Spanish through interaction with urban students and teachers in a bilingual classroom.
- 4311 Integrating Curriculum in a Bilingual/ESL Classroom (3-3-0)**
Field-based course that addresses bilingual/ESL methods and techniques for integration of various school subjects.

Early Childhood Education (ECH)

- 2311 Early Childhood Classroom (3-3-0)**
Classroom strategies and materials appropriate for preschool, kindergarten, and primary classrooms. (formerly PED 4311).
- 2312 The Young Child (3-3-0)**
Characteristics of physical, psychosocial, cognitive, language, and literacy development of young children and the instructional implications to those characteristics for an early childhood environment. (formerly PED 4312).
- 2313 The Early Childhood Learning Environment (3-3-0)**
Introduction to models and theories of the organization and management of an early childhood learning environment. Application of specific organizational strategies and classroom management techniques appropriate for young children.

Elementary Education (EED)

- 3301 Understanding the Learner in the Elementary Classroom (3-3-2)**
Prerequisite: Admission to the Teacher Education Program
Addresses factors that affect student learning in urban schools: human growth and development, environment, diversity, instruction, and motivation.
- 3311 Teaching Social Studies in the Elementary Classroom (3-3-2)**
Prerequisite: admission to teacher education program and enrollment in interdisciplinary blocks
A field-based course which addresses social studies curricula and methodology in urban elementary and middle-school classrooms.
- 3312 Effective Teaching Strategies in Mathematics Education (3-3-2)**
Prerequisite: admission to teacher education program

and enrollment in interdisciplinary blocks
A field-based course that emphasizes how children learn and develop mathematical concepts, skills, and procedures. The course will employ strategies to plan, organize, and implement instruction and curriculum goals aligned to local, state, and national standards.

- 3313 Effective Teaching Strategies in Science Education (3-3-2)**
Prerequisite: admission to teacher education program and successful completion of interdisciplinary block I
A field-based course that emphasizes inquiry-based, student-centered science learning experiences for young children and adolescents. This course employs research-based approaches that support effective teaching in science content and pedagogy resulting in high science achievement for learners.
- 3315 Effective Teaching Strategies in Science Education (3-3-2)**
Prerequisite: successful completion of Interdisciplinary Block I
A Field-based course that emphasizes inquiry-based, student-centered science learning experiences for young children and adolescents. This course employs research-based approaches that support effective teaching in science content and pedagogy resulting in high science achievement for learners.
- 3316 Understanding the Adolescent Learner and Environment (3-3-2)**
Prerequisite: admission to teacher education program
A field-based course that addresses factors which affect the learning of adolescents in urban schools. Among the topics covered are human growth and development, learning environment, diversity, instruction and motivation.
- 3317 Unifying Mathematics Concepts and Processes in Urban Education (3-3-2)**
Prerequisite: admission to teacher education program and concurrent enrollment in EED 3316 and EED 3318
A field-based course utilizing research-based mathematical processes to reason, solve, communicate, and make mathematical connections within and outside of mathematics. The course employs strategies to enhance student achievement in the urban classroom.
- 3318 Unifying Concepts and Processes in Science Education (3-3-2)**
Prerequisite: admission to teacher education program and concurrent enrollment in EED 3316 and EED 3317
A field-based course that emphasizes an integrated approach using unifying science concepts and processes across the science disciplines. The processes and concepts are taught using inquiry-based science learning experiences.
- 4301 Student Teaching in the Elementary Classroom (3-3-15)**
Prerequisites: Block II, Passing Score on Block II Exam.
Classroom management, student record keeping, assisted and independent teaching in an urban public school, guided by a mentor teacher and site-based university instructor.

4302 Student Teaching in the Middle-School Classroom (3-3-15)
Prerequisite: successful completion of interdisciplinary Blocks II, concurrent enrollment in interdisciplinary Block III and I.

Classroom management, student record keeping, assisted and independent teaching in an urban school, guided by a mentor teacher and site-based university instructor.

4303 Student Teaching in the Bilingual/ESL Classroom (3-3-15)
Prerequisites: Block II, Passing Score on Block II Exam.

Classroom management, student record keeping, assisted and independent teaching in an urban public school, guided by a mentor teacher and site-based university instructor.

4304 Student Teaching in the Early Childhood Classroom (3-3-15)
Prerequisites: Block II, Passing Score on Block II Exam.

Classroom management, student record keeping, assisted and independent teaching in an urban public school, guided by a mentor teacher and site-based university instructor.

4320 Advanced Processes for Teaching Writing in the Middle Grades (3-3-2)

Prerequisite: successful completion of interdisciplinary Block I and concurrent enrollment in EED 3311 and READ 3309.

This field-based course is designed to provide prospective teachers with the understanding that writing is a developmental process. Instructional tools that help late elementary and middle-school age children develop competence in written communication are addressed.

Educational Technology (ETC)

3301 Educational Technology (3-1-2)

Prerequisite: CS 1305, CIS 1301 or demonstrated competence.

An instruction to instructional technology appropriate for young children and adolescents. Examples of computer-based instructional tools that support interactive learning will be discussed. Provides a conceptual framework for understanding the design of multimedia courseware as well as the opportunity for hands-on experience with a variety of software packages.

Professional Education (PED)

3301 An Introduction to Exceptional Education (3-3-0)

Prerequisite: Admission to Teacher Education program.

An introduction to exceptionalities among children with emphasis on prevalence, causes, assessment, characteristics and educational considerations. Additional topics include: legal factors in special education, bilingualism, parents and families and current trends and issues.

3304 Aesthetic and Physical Development of Children (3-3-0)

Prerequisite: Admission to the teacher education program

This course provides preservice teachers the opportunity to understand the development of stages of young children in the areas of visual arts, music, creative drama and theatre appreciation, motor skills and perceptual awareness and personal health and safety.

3314 Children's Literature in Spanish (3-3-0)

Prerequisite: Admission to the teacher education program.

This course introduces students to children's Spanish literature, its history, development and uses in relation to the needs of the child and the culture. Instruction is conducted in Spanish.

4301 Collaboration in the Schools (3-3-0)

Prerequisite: Admission to Teacher Education program or department approval.

An exploration of strategies for school personnel to function as effective collaborators. Topics include inclusion, interpersonal teaming and communication skills.

Reading Education (READ)

3301 Teaching Reading in the Elementary Schools (3-3-2)

Focuses on the developmental nature of reading. Examines current methods, strategies, and materials for emergent literacy, elementary reading, and middle school reading instruction.

3302 Correcting Reading Problems in the Classroom (3-3-2)

Focuses on procedures and strategies for preventing, diagnosing and correcting reading problems. Examines theoretical models of the reading process and the nature and types of reading differences (disabilities).

3303 Literacy Curriculum, Methods, and Assessment EC-2 (3-3-2)

Prerequisite: READ 3305 and READ 3306.

Current methods, strategies, and curricular resources for teaching and assessing emergent literacy in the early childhood-second grade classroom

3304 Reading Curriculum, Methods, and Assessment 4-8 (3-3-2)

Prerequisites: READ 3305.

Reading instructional strategies, methods, approaches, and classroom assessment procedures for the upper elementary and middle school classroom teacher. Focuses on providing appropriate instruction to address student diversity and class performance differences for students in upper elementary and middle school.

3305 Foundations of Literacy Development and Instruction, Early Childhood-Grade 8 (3-3-0)

Prerequisite: Admission to Teacher Education Program. Course focuses on the developmental nature of reading and examines theoretical approaches to literacy instruction.

3306 Language and Literacy Development (3-3-0)

Prerequisite: Admission into Teacher Education Program.

Investigates the relationship between language and thought, theories of language development, changes in the young child's cognitive structure, and the role of the teacher in literacy development.

3307 Language Arts Instruction (3-3-0)

Prerequisite: Admission into Teacher Education Program.

This course is designed to address instruction of expressive language (speaking and writing) and

receptive language (reading and listening). Methodologies for instructing grammar conventions, Standard English usage, spelling, writing process, and expressive communication skills and strategies are emphasized.

- 3308 Literacy Curriculum, Methods, and Assessment in Spanish EC-2 (3-3-2)**
Prerequisite: READ 3305 and READ 3306.
Current methods, strategies, and curricular resources for teaching and assessing emergent literacy for the Spanish-speaking student in the early childhood-second grade classroom.
- 3309 Teaching Reading in the Content Area 4-8 (3-3-0)**
(Prerequisite: READ 3305)
Focuses on reading as a thinking and learning process. Emphasizes current theory and methods for teaching reading and study strategies for elementary and middle school classroom teachers.
- 3310 Teaching Reading in the Secondary School Content Areas (3-3-0)**
Focuses on reading as a thinking and learning process. Emphasizes current theory and methods for teaching reading and study strategies for secondary content area teachers.
- 3311 Teaching Reading in the Secondary School Content Areas (3-3-2)**
Prerequisite: Admission to Teacher Education Program and concurrent enrollment in Interdisciplinary Block I Secondary.
Field-based course that focuses on techniques for applying reading and study skills across secondary subject areas. Includes opportunities to interact with students and teachers in urban public school settings.
- 3312 Reading Curriculum, Methods, and Assessment in ESL 4-8 (3-3-2)**
Prerequisite: READ 3305.
Instructional strategies, methods, approaches, and classroom assessment procedures for teaching reading to bilingual and ESL upper elementary and middle school students. Focuses on providing appropriate instruction to address student diversity and class performance differences for students in upper elementary and middle school.
- 4303 Literacy Curriculum, Methods, Assessment (3-3-2)**
Prerequisite: READ 3303.
Current methods, strategies, and curricular resources for teaching and assessing beginning reading for students in grades 2-4.
- 4304 Diagnostic Instruction of Reading 4-8 (3-3-2)**
Prerequisite: READ 3304.
Designed to address at-risk readers, this course focuses on assessment, evaluation, and diagnosis of reading difficulties and appropriate instructional strategies to meet specific needs within the regular classroom. This field-based course requires working one-to-one with an elementary or middle school student to provide individualized instruction based on assessment data.

4306 Literacy Curriculum, Methods, and Assessment in Bilingual/ESL (3-3-2)

Prerequisite: READ 3308.

Current methods, strategies, and curricular resources for teaching and assessing beginning reading for Spanish speaking and ESL students in grades 2-4.

4307 Diagnostic Instruction of Reading in the ESL Classroom 4-8 (3-3-2)

Prerequisite: READ 3312.

Designed to address bilingual and ESL readers, this course focuses on assessment, evaluation, and diagnosis of reading difficulties and appropriate instructional strategies to meet specific needs within the regular classroom. This field based course requires working one-to-one with an elementary or middle school bilingual or ESL student to provide individualized instruction based on assessment data.

Secondary Education (SED)

3301 Understanding the Learner in the Secondary School (3-3-2)

Prerequisites: Admission to Teacher Education Program and concurrent enrollment in Interdisciplinary Block I.

Field-based course that explores the relationship of human growth and development to learning and education in the secondary school environment. Special emphasis is placed on applying this understanding to culturally diverse students in an urban setting.

3302 Enhancing Student Achievement in the Secondary School (3-3-2)

Prerequisites: Successful completion of interdisciplinary Block I and concurrent enrollment in Interdisciplinary Block II.

This field-based course provides students the opportunity to develop and apply effective instructional techniques that enhance student learning across the secondary school curriculum. Special attention is paid to the integration of technology into lesson planning and design.

3311 Curriculum Foundations for Teaching in the Urban Secondary School (3-3-2)

Prerequisites: Admission to Teacher Education Program and concurrent enrollment in Interdisciplinary Block I.

An introductory course which surveys techniques and materials appropriate for presentation and design of the learning experience across the secondary school curriculum. This field-based course is structured so that special emphasis is placed on the interaction of technology into the learning experience.

3312 Organizing and Managing Classroom Environment in the Secondary School (3-3-2)

Prerequisites: Successful completion of Interdisciplinary Block I and concurrent enrollment in Interdisciplinary Block II.

This field-based course provides for the introduction, analysis, and development of effective classroom management principles. Course content includes consideration for students of various cultures in urban settings as well as students with special needs.

4301 Student Teaching in the Secondary Classroom (3-3-15)
Prerequisites: Successful completion of Interdisciplinary Blocks I and II, concurrent enrollment in Interdisciplinary Block III.

Classroom management, student record keeping, assisted and independent teaching in an urban public school, guided by a mentor teacher and site-based university instructor.

4302 Student Teaching in the Secondary Classroom (3-3-15)
Prerequisites: Successful completion of Interdisciplinary Blocks I and II, concurrent enrollment in Interdisciplinary Block III.

Classroom management, student record keeping, assisted and independent teaching in an urban public school, guided by a mentor teacher and site-based university instructor.

Social Sciences-Education (SOSE)

3306 Culture of the Urban School (3-3-0)

Prerequisite: Introductory course in social science.
Urban culture as the dominant form of community life in contemporary schools: characteristics, unique properties, and problems.

3320 Assessment and Evaluation of Children (3-3-0)

Prerequisites: PSY 1303.
Principles and procedures for evaluating the cognitive, affective, and social learning of children.

3321 Assessment and Evaluation in the Classroom (3-3-2)

Prerequisites: Admission to the Secondary Teacher Education Program and completion of Block I.
A field-based course in the Teacher Education program. Principles and procedures for evaluating the cognitive, affective, and social learning of adolescents.

4303 Current Issues in Urban Teaching (3-3-2)

Prerequisite: Block II, Passing Score on Block II Exam, or departmental approval.
A field-based course in the Teacher Education program. Examines the characteristics of current social movements useful to the sociological study and interpretation of major social trends involving both social and cultural change in urban schools and society as a whole.

Education - Graduate (MAT)

6301 Science Methods for the Elementary/Middle School Teacher (3-3-0)

Prerequisites: post-baccalaureate admission. EED 3303, EED 3313, READ 3301, technology proficiency, and concurrent enrollment in MAT 6302, MAT 6303
Examines and emphasizes learner centered science experiences for the EC-8 students. Uses research-based approaches that support effective teaching and high achievement in science content and pedagogy. Participants evaluate research studies and recent trends and issues to aid in the development of culturally responsive and outcome-oriented science learning experiences for diverse learners. (Content varies based upon EC-4 or 4-8 licensure level sought).

6302 Mathematics Methods for Elementary/Middle School Teachers (3-3-0)

Prerequisites: post-baccalaureate admission, EED 3303, EED 3313, READ 3301, technology proficiency, and concurrent enrollment in MAT 6301, MAT 6303
Examines and emphasizes learner centered mathematics for the EC-8 students. Focuses on research-based approaches to support the effective teaching of mathematics. Participants evaluate research studies and recent trends and issues to aid in the development of culturally responsive and outcome-based mathematics learning experiences for diverse learners. (Content varies based upon EC-4 or 4-8 licensure level sought).

6303 Diagnostic Testing of Reading (3-3-0)

Prerequisites: post-baccalaureate admission, EED 3303, EED 3313, READ 3301, technology proficiency, and concurrent enrollment in MAT 6301, MAT 6302
Studies research-based assessment and instruction to support the literacy learning among students with a wide range of strengths and needs. Participants are exposed to a variety of instructional materials, resources, and assessments to maintain a positive environment for diagnostic testing and enhanced literacy learning. (Content varies based upon EC-4 or 4-8 licensure level sought).

6304 Language Arts/Reading Methods in Spanish (3-1-2)

Prerequisites: post-baccalaureate admission, BED 3303, BED 3313, READ 3301, technology proficiency, and concurrent enrollment in MAT 6305, MAT 6306
Presents strategies for providing developmentally appropriate emergent literacy and holistic instruction. Includes the selection of appropriate materials and authentic assessment. Instruction conducted in Spanish. (Content varies based upon EC-4 or 4-8 licensure level sought).

6305 Integrated Curriculum - Bilingual (3-3-0)

Prerequisites: post-baccalaureate admission, BED 3303, BED 3313, READ 3301, technology proficiency, and concurrent enrollment in MAT 6304, MAT 6306
Focuses on bilingual methods, approaches, and materials to teach content in language arts, mathematics, social studies, and science in a bicultural bilingual classroom. Emphasizes a multidisciplinary approach to instruction that incorporates various learning styles, and the development of classrooms conducive to learning and reflective of cultural diversity. Instruction conducted in Spanish. (Content varies based upon EC-4 or 4-8 licensure level sought).

6306 Reading Diagnosis in Bilingual Classroom (3-3-0)

Prerequisites: post-baccalaureate admission, BED 3303, BED 3313, READ 3301, technology proficiency, and concurrent enrollment in MAT 6304, MAT 6305
Supports a multidisciplinary approach to diagnosis and remediation of reading problems for bilingual/bicultural students, with special attention to cognitive, sociolinguistic, and emotional factors that may impede learning. Students conduct hands-on assessment and develop appropriate instructional strategies based upon a variety of paradigms. (Content varies based upon EC-4 or 4-8 licensure level sought).

6307 Managing the Secondary Environment for Student Success (3-3-0)

Prerequisites: post-baccalaureate admission, SED 3303, SED 3313, READ 3310, technology proficiency, and concurrent enrollment in MAT 6308, MAT 6309
Emphasizes enhancing achievement for all secondary-age learners. Includes planning outcome-oriented learning experiences, using effective communication techniques, choosing a variety of instructional materials and resources, using formal and informal assessment, and managing environment to maintain a positive classroom climate.

6308 Curriculum and Instruction in Secondary Schools (3-3-0)

Prerequisites: post-baccalaureate admission, SED 3303, SED 3313, READ 3310, technology proficiency, and concurrent enrollment in MAT 6307, MAT 6309
Shows students to develop understandings of instructional methods in their area of specialization. Students become familiar with methods and lesson design, planning, and educational assessment and evaluation appropriate for their teaching field.

6309 Assessment and Evaluation in Secondary Schools (3-3-0)

Prerequisites: post-baccalaureate admission, SED 3303, SED 3313, READ 3310, technology proficiency, and concurrent enrollment in MAT 6307, MAT 6308
Critically examines the role of measurement and evaluation in the instructional process for secondary students. Focuses on developing knowledge and competency in the design, practice, and interpretation of a variety of methods used to evaluate learning, curriculum, and instruction.

6310 Reading in a Multicultural Classroom (3-3-0)

Prerequisite: graduate standing, technology proficiency, and concurrent enrollment in MAT 6311, MAT 6312
Enhances the development of a knowledge base for teaching and evaluating reading/language arts program for culturally and linguistically diverse classrooms. Examines current of second language development and studies the basic principles and practices of reading/language arts instruction: beliefs, factors influencing learning, instructional strategies, organizational practices, assessments, and materials.

6311 Advanced Study of Developmental Psychology and Diversity (3-3-0)

Prerequisite: graduate standing, technology proficiency, and concurrent enrollment in MAT 6310 and 6312
Examines the developmental changes from birth to adolescence. Emphasizes psychological and sociological perspectives and their application to learning and teaching in a culturally and linguistically diverse society.

6312 Foundations of Curriculum and Instruction for Culturally Diverse Settings (3-3-0)

Prerequisite: graduate standing, technology proficiency, and concurrent enrollment in MAT 6310 and 6311.
Analyzes the multicultural forces that influence curriculum and instruction: philosophy, psychology, pedagogy/learning, sociology, knowledge, and evaluation. Contrasts major approaches to curriculum and instruction. Students apply theory to the development and supervision of a curricular and instructional plan for situ-

ations relevant to culturally diverse settings, including at-risk youth and students, with limited English proficiency.

6315 Introduction to Educational Research (3-3-0)

Prerequisite: graduate standing and technology proficiency

Examines the emerging practice of “classroom teachers as researchers” including both theory and practice. Provides students with an introduction to variety of research designs and strategies, both traditional and non-traditional. Students examine and evaluate empirical studies that use different designs and strategies.

6316 Advanced Methods for the Culturally Diverse Classroom (3-3-0)

Prerequisite: nine SCH’s from courses in Language Arts, Mathematics, Social Studies, or Natural Science strands
Course sections are designed to offer students the opportunity to develop skills in instructional methodology specifically related to and derived from the characteristics of the discipline taught: (1) science, (2) mathematics, (3) social studies, or (4) language arts. Special emphasis is placed upon teaching in culturally diverse classrooms.

6317 Classroom-Based Research (3-1-2)

Prerequisite: MAT 6315

Application of data gathering and analysis skills in classroom research studies. Participants conduct directed research in classroom practices in elementary, bilingual, or secondary classrooms. Students examine issues such as validity, reliability, and generalizability. Students are guided through their own research projects.

6318 Technology Application for Curriculum Development and Instruction (3-1-2)

Prerequisite: graduate standing and technology proficiency

Advances the effectiveness of teachers by expanding and updating their understanding of the role of technology and pedagogy. Focuses on technology from each of three perspectives: as a tool, as a medium, and as a setting for learning. Students construct professional and instructional Web pages and continue to use newsgroup and e-mail extensively. Students work with Web-based instructional tools that support learning in communities. Provides a conceptual framework for understanding the design of multimedia courseware as well as the opportunity for hand-on experience with a variety of software packages.

6319 Teaching the Language Minority Child (3-3-0)

Prerequisite: graduate standing and technology proficiency

Studies how social, cultural, and linguistic factors affect the reading and writing of students and how school curriculum and instruction can be designed to support students from differing sociocultural backgrounds. Special attention is given to the role that socioeconomic status, dialect, gender, second language learning, and ethnicity play in literacy learning and teaching.

6321 Teaching Children’s Literature in Spanish (3-3-0)

Prerequisite: graduate standing and technology proficiency

Examines the selection and uses of Spanish children’s

literature in bilingual classrooms. Emphasizes ways to integrate literature into bilingual/bicultural curriculum and instruction.

6322 Readings in Critical Pedagogy (3-3-0)

Prerequisites: graduate standing, MAT 6315.

Utilizing dialectical methodology, this course explores the nature of power relations relative to the perspectives of race, gender, ethnicity, sexual orientation, physical disability, and socioeconomic status in the organization, curriculum, and operations of public schools in urban settings. Examines the reflection/action continuum as it pertains to the language of critique and the language of possibility in its application to classroom practices.

6380 Practicum for Urban Teachers (3-1-2)

Prerequisite: MAT 6310, MAT 6311, MAT 6312

Offers teachers an opportunity to participate, over a two-semester period, in university-sponsored workshops/seminars. Workshops are designed to support urban teachers in (a) applying teacher education knowledge to the full responsibility of day-to-day teaching (b) reflecting on challenges and events occurring in their classrooms and schools, and (c) engaging in cooperative solving of inevitable problems that arise during the teaching experience.

6381 Internship in Urban Classrooms (3-1-2)

Prerequisites: Completion of nine hours from MAT 6301, 6302, 6303; 6304, 6305, 6306; or 6307, 6308, 6309

Offers students a supervised internship in an urban educational setting over a two-semester period. Examines the diversity of community resources for elementary, bilingual, or secondary education. Students systematically develop strategies for integrating local and regional resources into the teaching and learning process. (Content varies based upon EC-4 or 4-8 licensure level sought).

6390 Directed Study in Urban Teaching (3-1-2)

Prerequisite: MAT 6316, MAT 6317, and MAT 6318

Offers the opportunity for specialized study not normally or not often available as part of the regular offerings

Electrical Engineering Technology (EET)

1411 Electric Circuits with Lab (4-3-1)

Prerequisites: MATH 1301 or department approval. Laboratory fee required. \$12.

Theory and applications of electric circuits as found in typical engineering systems and daily living environment. Basic principles and analysis methods for dc and ac circuits are studied and circuit applications explored. Computer simulation software tools are used extensively to provide an interactive teaching and learning process. Hands-on experience is gained through circuit testing and trouble shooting exercises. This course lays the foundation for the rest of Electrical Engineering courses.

2421 Electronic Devices and Amplifiers with Lab (4-3-1)

Prerequisite: EET 1411 or department approval. Laboratory fee required \$12.

Study of the characteristics and operation of electronic devices including diodes, bipolar junction transistors and field effect transistors, operational amplifiers, 555 timers. Electronic circuitry for signal amplification and filtering, instrumentation, power regulation, electric drives. Use of computer software in electronics design.

2431 Digital Logic with Lab (4-3-1)

Prerequisite: EET 1411 or department approval.

Laboratory fee required: \$12.

Introduction to binary numbers, Boolean algebra, and Karnaugh maps. Logic gates, memory devices, counters, registers, arithmetic logic units, and data-handling circuits. A/D and D/A converters. Combined computer simulation and circuit testing in the laboratory.

3334 Electrical Power Systems (4-3-1)

Prerequisite: EET 1411.

Basic principles and applications of electrical power systems, power generation, transmission and distribution in utility and industrial systems. Included are lighting and grounding design, motor controls, transformers and area classification. Computer simulation of power systems.

3432 Computer Architecture and Design with Lab (4-3-1)

Prerequisite: EET 2431.

Laboratory fee required: \$12.

The organization and design of digital computer systems, including microprogramming, register transfer language, micro-operations and control functions of the computer. Computer input/output. The microcomputer is emphasized. The basics of machine and assembly language are utilized with the hardware.

3433 Computer Input/Output and Interfacing (4-3-1)

Prerequisites: EET 3432 and CS 2401.

Computer input/output methods and interfacing techniques, including bus systems, peripheral hardware, software design, programmed and interrupt I/O and direct memory access. Emphasis is on microcomputers.

3435 Fundamentals of Automation and Control with Lab (4-3-1)

Prerequisites: EET 2421 and MATH 2402.

Laboratory fee required. \$12.

Study of plant dynamic modeling (first-and second-order, transfer functions, nonlinear characteristics) and simulation, control system configurations (open-loop, closed-loop, combined feedforward/feedback control), types of controllers (analog, PC-based, PLCs), and control modes (on-off, PID, etc.). System designs for dc servo position and speed control, temperature control, lighting control, etc.

3451 Instruments and Transducers with Lab (4-3-1)

Prerequisites: EET 2421 or department approval.

Laboratory fee required: \$12.

Transducer characteristics and applications. Sensor and measurement systems for major process variables: temperature, pressure, level, flow, and other physical variables. Design on signal conditioning circuits. 4-20mA current loops. Data acquisition and instrumentation networks.

3461 Analog and Digital Communication Circuits with Lab (4-3-1)

Prerequisites: EET 2421 and EET 2431.

Laboratory fee required. \$12.

Analysis of tuned circuits, modulation/demodulation techniques, transmitters and receivers basic transmission line theory, data communication techniques and modems. Applications of fiber optics for communication systems.

4335 Computer Networking (3-3-0)

Prerequisite: EET 3461

Principles and applications of computer networking techniques, including the seven layered protocol model, hierarchy of commands, descriptions of the physical layers of the model and descriptions and analysis of popular techniques currently in existence. Development and implementation of NT networks.

4434 Microprocessor Systems Design (4-3-1)

Prerequisite: EET2431

Laboratory fee required. \$12.

Design, application and operation of various electronics systems using microprocessors. Consideration will be given to the specific type of components required, the sources of manufactured components, and the construction of the circuits and systems. Emphasis will be placed on microcomputers and their related peripherals and the use of system design software, XILINX. Various electronic circuits will be designed, implemented, and troubleshot using PAL's and PGA's. A group electronics systems project using microprocessors will be completed and troubleshot using all aspects of the course.

4442 Real-Time Executive Level Programming (4-3-3)

Prerequisite: EET 3333.

Co-requisites: CS 2310 or CS 3308

Laboratory fee required.

Principles and applications of programming techniques for microcomputers at the executive level to perform multi-tasking and real-time operations. Changes in the software systems to allow more efficient operation of microcomputers for specific tasks, such as control of multiple processes.

Engineering (ENGR)

1302 Engineering and Technology Fundamentals (3-3-0)

Prerequisites: ENGR 1301 and credit or enrollment in MATH 1302.

Overview of techniques and fundamental principles used in engineering, science and technology. Topics include: dimensional analysis and units, measurements, representation of technical information, problem solving, and an introduction to selected science and engineering topics.

1400 PC Applications in Engineering (4-3-1)

Prerequisite: MATH 1301.

Application of PC hardware and software to engineering problems. Data acquisition and computational methods for control systems, structures, and piping systems. Intensive use of the NSF sponsored laboratory for data acquisition,

transmission and analysis of data. Modern computational approach to solids-fluids mechanics, and heat transfer.

1401 Engineering Graphics and Visualization with Lab (4-3-4)

Laboratory fee required. \$12.

Introduction to graphics, with emphasis on drafting techniques: use of instruments, lettering, geometric constructions, multiview projections, auxiliary views, sectional views, sketching drawings for electrical, piping and structural applications. Introduction to computer-aided drafting.

1402 Fire and Safety Hazard Recognition with Lab (4-3-1)

Prerequisite: MATH 1302.

Laboratory fee required. \$12.

Physical, chemical, electrical, and natural hazards and their relationship to loss of property and/or life. Safe location, storage, transportation and handling practices to eliminate or control the risk of fire and other hazards in the home, business and industry. Experiments and computer simulations.

1403 Fire Suppression and Detection Systems (4-3-1)

Prerequisite: MATH 1302.

Laboratory fee required. \$12.

The design, installation, maintenance and utilization of portable fire-extinguishing appliances and pre-engineered systems. Operational capabilities and utilization requirements of fire detection and signaling systems. Fire detection and suppression applied in practical problems. Experimental demonstrations and computer simulation of hazard detection systems.

1404 Automatic Fire Suppression Systems with Lab (4-3-1)

Prerequisite: MATH 1302.

Laboratory fee required. \$12.

Detailed current standards for selection, design, installation, operation, and maintenance of automatic fire suppression systems. Experiments and computer simulations.

1480 Occupational Safety Techniques (4-3-1)

Prerequisite: MATH 1302.

Laboratory fee required. \$12.

Occupational facilities, equipment and operations and their inherent hazards. Directed toward worker, machine and environmental control. Equipment demonstrations and computer simulation of safe equipment operation.

2304 Computer-Aided Drafting and Design I (3-2-2)

Prerequisites: ENGR 1401 or department approval.

Laboratory fee required. \$12.

An introduction to Computer Aided Drafting and Design (CADD) systems commonly used in industry. Topics include introduction to CADD systems, basic drawing and editing commands, drawing annotations, dimensioning, cross hatching, creation and use of drawing symbols, generation of engineering drawing and drawing database.

2407 Surveying with GIS-GPS (4-3-3)

Prerequisite: MATH 1302.

Laboratory fee required. \$12.

Field training in the use of electronic measurement devices, total stations and global positioning systems (GPS) applied to construction projects. Field recording of data, uploading to microcomputers for analysis using

geographic information systems (GIS). Computation of areas and construction volumes. Downloading of data for field layout. Surveying applied to flood prevention and environmental measurements.

2409 Engineering Mechanics with Lab (4-3-1)

Prerequisites: ENGR 2308 and MATH 2401.
Laboratory fee required. \$12.

Study of elastic bodies, stresses and strains, axial loads, torsion, beam stresses, beam deflections, combined stresses, columns, connections and behavior of materials under tension, compression and torsional loading. Study of thermal properties of materials. Applications of instrumentation.

2410 Analysis of Engineering Networks with Lab (4-3-1)

Prerequisite: Departmental Approval.
Laboratory fee required. \$12.

This course applies energy principles of thermodynamics, fluid mechanics and electric circuits to the analysis of common engineering networks. Piping systems, electric circuits and structural networks are studied under basic principles of conservation and dissipation of energy. Applications of linear algebra to the analysis of networks. Computer simulation of engineering networks.

3302 Engineering Economics (3-3-0)

Prerequisite: Junior standing.

Time value of money, annual cost, present worth, future value, capitalized cost, break-even analysis, valuation and depreciation, income taxes. Economic evaluation of engineering alternatives and proposals. Use of spreadsheets. Introduction to optimization.

3303 Codes and Specifications (3-3-0)

Prerequisite: Junior standing.

Fundamental principles underlying development of specifications to comply with industry codes including: OSHA, NFPA, and UBC., Application of codes to types of construction, contracts, bidding procedures, analysis of office organization, and manufacturer's specifications.

3305 Computer-Aided Drafting and Design II (3-2-2)

Prerequisites: ENGR 1401 and ENGR 2304.
Laboratory fee required. \$12.

Advanced topics in Computer Aided Drafting and Design (CADD) systems commonly used in industry. Topics include advanced drawing, editing and dimensioning commands, generation of 3-D drawings, extracting database information from drawings, applications in piping, structural and electrical drawings.

3308 Fluid Mechanics (3-3-0)

Prerequisites: MATH 2401 and ENGR 2308.

Fluid properties, fluid statics, flow concepts and basic equations, viscous effects, laminar and turbulent flow, pipe flow, momentum equation and energy equation. Use of software in designing flow systems. Applications to fire prevention systems.

3311 Structural Analysis (3-3-0)

Prerequisite: ENGR 2309.

Analysis of trusses, beams and frames using classical and matrix methods. Service and ultimate load analysis. Intensive application of computers to structural

analysis including program development. Experimental verification of analytical results. Vibration of structures. Experimental evaluation of existing structures for safety.

3312 Reinforced Concrete Design (3-3-0)

Prerequisite: ENGR 2309.

Analysis and design procedures based on ultimate load capacity based on the ACI Code, effects of creep, shrinkage, and temperature, torsional stresses and study of deflections. Computer applications to concrete design and program development Behavior of concrete members under fire and explosion conditions.

3401 Biomedical Instrumentation with Lab (4-3-1)

Prerequisite: EET 2421

Laboratory fee required. \$12.

Applications of electronics devices to monitoring biological systems. Origin of biopotentials and bioelectrodes. Amplifiers for physiological measurements. Measurement techniques for cardiac and circulatory systems. Measurement of respiratory parameters. Measurement techniques for electrical activity of the brain. Electroencephalography.

3403 Process Piping Design for Offshore Installations

Prerequisite: ET 3402

Laboratory fee required. \$12

A continuation of ET 3402 Process Piping Design II. This course applies the concepts and practices of process piping design to offshore installations.

3404 Digital Signal Processing with Lab (4-3-1)

Prerequisite: ENG 1400 and EET 2421

Laboratory fee required. \$12.

Analysis of discrete time signals and systems. Three key aspects will be addressed: sampling signals, frequency response, filter design and implementations. Both PC-based and special purpose processor DSP systems will be used. Case studies of DSP applications in audio, communication, and biomedical systems.

3406 Processing Control Systems with Lab (4-3-1)

Prerequisite: EET 3435.

Laboratory fee required. \$12.

Process representations and P&ID diagrams. Temperature, pressure, flow, and level control in industrial processes. Supervisory Control and Data Acquisition (SCADA). Distributed Control System (DCS) configuration and implementation

3407 Industrial Robotics with Lab (4-3-1)

Prerequisite: Departmental approval.

Laboratory fee required. \$12.

This course addresses the problem of controlling robots that operate in dynamic, unpredictable environments. Students, in pairs, build their own robot, and program it to perform a variety of simple tasks. In addition, the course covers the major paradigms of robot programming and studies architectures for building perception and control systems for intelligent robots. Applications to industrial and medical systems.

3409 PC Facilities Management with Lab (4-3-1)

Prerequisite: Departmental approval.

Laboratory fee required. \$12.

This course addresses the problem of life cycle management of PC facilities. The course includes equipment selection, installation, maintenance, troubleshooting and upgrading. Hardware and software aspects of the PCs and its communications are covered in the lectures involving theory and intensive practice. Economic aspects of PC facilities.

3410 Process Modeling and Simulation (4-3-1)

Prerequisite: ENGR 2410 or Departmental Approval. Laboratory fee required. \$12.

Process analysis based on the laws of physics and thermodynamics, material and energy balance. Modeling and simulation of typical industrial processes: gas processing, oil refinery and other petrochemical and chemical engineering processes. Steady state modeling and optimization for process design and dynamic modeling for process controllability. Use of computer software tool HYSYS.

4330 Systems Safety Management (3-3-0)

Prerequisite: ENGR 2409.

Fire and other hazards/safety techniques to recognize, evaluate and control potential occupational hazards. Critical path, LAD, PERT and human factors concepts. Computer simulations.

4340 Senior Project in Piping Design (3-3-0)

Prerequisites: ENGR 3308 and ET 4315 or departmental approval.

A capstone course consisting primarily of a process piping design project with complexity comparable to current industrial practice. The course and project requires the combined application of elements of plying layout and design, process equipment, thermodynamics, fluid mechanics, stress analysis and engineering economics. The course is to be taken near the completion of degree requirements towards the Process Piping Design degree program.

4350 Industrial Loss Prevention (4-3-1)

Prerequisite: ENGR 2409.

Laboratory fee required. \$12.

Specific industrial processes, equipment, facilities and work practices for detecting and controlling potential hazards. Computer simulation of hazard detection.

4360 Advanced Safety and Fire Problems (3-3-1)

Prerequisite: Senior standing.

Selected problems in the fire and hazards fields, occupational safety, occupational health and industrial security area. Research of state-of-the-art technologies to prevent or correct such problems. Development of computer software to simulate selected hazard conditions.

4370 Human Factors in Fire and Safety (3-3-1)

Prerequisite: Senior standing.

Case study of the influence of human behavior in life losses during hazardous situations. Cases include flood, tornado, fire, and explosions.

4380 Security of Computing Systems (3-3-0)

Prerequisite: ENGR 1400.

Security of hardware and software systems. Case study of information losses due to fire, flood and tornado. Software safety cases including viruses and distortion of code and data integrity.

4410 Industrial Hygiene Instrumentation with Lab (4-3-1)

Prerequisite: ENGR 2409.

Laboratory fee required. \$12.

Toxic or irritating substances, physical, biological, ergonomic and other occupational stress factors causing employee illness or discomfort. Environmental pollution sources and controls. Description, operation and application of quantitative instruments in general use in industrial hygiene. Computer simulation of industrial environments

4411 Structural Design for Fire Safety (4-3-1)

Prerequisite: ENGR 3311.

Analysis and design of structures under fire that threatens human life. Introduction to fires and fire safety. Contribution of structural fire resistance to overall fire safety. Application of fire computer models to the design of structures safe for human occupancy. Fire performance of structural materials.

4420 Fire Dynamics (4-3-1)

Prerequisite: Senior standing.

Study of the critical aspects of fire dynamics including: Fuels and combustion processes. Physical chemistry of combustion. Diffusion flame and fire plumes. Spread of flames. Production and movement of smoke. Computer simulations of fire dynamics.

4450 Industrial Safety (4-3-1)

Prerequisite: ENGR 2409.

Laboratory fee required. \$12.

Principles of fire dynamics, heat transfer and thermodynamics are combined with a general knowledge of automatic detection and suppression systems to analyze fire protection requirements for generic industrial hazards. Topics covered include safety separation distances, plan layout, hazard isolation, smoke control, warehouse storage and flammable-liquid processing and handling. Historic industrial fires influencing current practice on these topics are also discussed.

Engineering Technology (ET)

2401 Piping Drafting I (4-3-3)

Prerequisites: ENGR 1401 or equivalent.

Laboratory fee required. \$12.

Basic piping fundamentals used in design and layout of piping systems for petroleum and petrochemical facilities. Items stressed are symbols, plot plans, flow diagrams, abbreviations and specifications. Safety aspects of piping systems.

2402 Piping Drafting II (4-3-3)

Prerequisite: ET 2401.

Laboratory fee required. \$12.

Continuation of ET 2301. Application of basic piping fundamentals in arrangement drawings and isometric configurations. Piping systems, underground piping, meter runs control valve manifolds, level instruments and bridles and steam traps are also studied. Safety aspects of piping systems.

3307 Applied Thermodynamics (3-3-0)

Prerequisites: MATH 2401 and CHEM 1307.

Fundamentals of thermodynamics, including applications of the first and second laws, enthalpy, entropy, application of reversible and irreversible processes to a variety of systems and problems, use of thermodynamic tables and ideal gas law. Energy balances and their applications. Estimation of properties. Thermodynamics of fire.

3308 Materials Science (3-3-0)

Prerequisite: CHEM 1307.

The physical, mechanical, thermal, magnetic, electrical and chemical properties and their relation to atomic, molecular and crystalline structure of materials. Introduction to processing of materials and their testing. Applications of material science in engineering. New frontiers in materials technology. Criteria for selection and use of materials. Safety criteria for section of materials.

3320 Modern Concrete Technology (3-2-2)

Prerequisite: Junior standing.

Laboratory fee required. \$12.

Properties and requirements of cement and aggregates, water-cement ratio and proportioning of mixtures for concrete. Behavior and properties of fresh and hardened concrete. Emphasis on behavior under pressure and fire. Handling of fresh concrete, formwork, quality control, inspection and laboratory testing of concrete. Application of expert systems in concrete technology. High-strength and lightweight concretes. Inspection of concrete structures.

3321 Soil Mechanics (3-3-0)

Prerequisite: Junior standing.

Laboratory fee required. \$12.

Geological origin, identification, description and classification of soils. Physical, consolidation and hydraulic properties of soil. Site and subsurface explorations and testing of soil. Essentials of good foundations. Stability of slopes and earth pressure. Computer application in soil mechanics. Environmental contamination of soils.

3322 Finite Element Analysis of Structures (3-3-0)

Prerequisite: ENGR 3311.

Finite element analysis of structures. Numerical and matrix techniques and their relationships to classical energy and differential equation methods. Expert systems applied to structural design. Experimental determination of stiffness and flexibility matrices. Nondestructive evaluation of structures. Vibrations of structures. Finite element analysis of structures exposed to high temperatures. Practical training in industrial FEA codes. Program development.

3325 3D Computer Modeling, Rendering and Animation (3-2-2)

Prerequisites: ENGR 3305 and junior standing.

Application of advanced computer aided design principles to construction of 3D computer models for structural, piping, and electronics systems. Computer animation applied to control of systems in the same fields. Applications of plan layout for analysis of industrial safety.

3326 Plumbing System Design I (3-3-0)

Prerequisites: ENGR 2304 or department approval.

This is an introductory course in plumbing design teach-

ing the basics for producing an engineered plumbing design for commercial, institutional and medical buildings, including fire protection considerations. Emphasis is placed on preparation of design and arrangement drawing using CADD systems.

3399 Directed Study in Engineering Technology

Prerequisites: Approval of department chair and dean.

Selected topics in Engineering Technology.

3401 Process Piping Design I (4-3-3)

Prerequisites: ET 2302 and ENGR 2304.

Laboratory fee required. \$12.

Concentration on piping design problems associated with heat exchangers, pumps, horizontal and vertical vessels, pipeways and plant layouts. Emphasis is placed on design concepts used in the preparation of piping arrangement, elevation and isometric drawings. Piping analysis to meet safety specifications.

3402 Processing Piping Design II (4-3-3)

Prerequisite: ET 3401.

Laboratory fee required. \$12.

Concentration on piping design problems related to plant design. Heaters, boilers and compressors are covered. Problems associated with underground piping are considered. Continued emphasis is placed on preparation of piping arrangement, elevation and isometric drawings. Includes an introduction to piping flexibility and standard piping details. Introduction to use of scale plot and engineering models in the process piping design industry. Piping analysis to meet safety specifications.

4107 Fluid Mechanics Laboratory (1-0-2)

Prerequisites: Credit or enrollment in ET 4307 or department approval.

Laboratory fee required. \$12.

Experimental verification of empirical and theoretical results used in fluid mechanics and introduction to the experimental method as an approach to solving problems in fluid mechanics.

4301 Piping Models (3-2-2)

Prerequisites: ET 3402, ENGR 2304.

Laboratory fee required. \$12.

Introduction to engineering scale models from initial layout of plot-plan model through completion of engineering design model. Use of 3D solid modeling software to design plants including modeling of equipment, steel structures and piping. Plant safety considerations.

4302 Instrumentation (3-3-0)

Prerequisites: EET 1311 and EET 1111.

Automated controls and instrumentation as applied in refineries, chemical plants and petrochemical operations. Major process variables, types of instruments, controller modes and final control element selection and sizing. Development of control loops for major process variables. Instrumentation for plant protection and safety.

4303 Pipe Support Design (3-3-0)

Prerequisites: ENGR 2309 and ET 2401.

Design and selection of pipe supports for piping systems including those for service at elevated temperature and cryogenic service.

- 4304 Pressure Vessel Design (3-3-0)**
Prerequisite: ENGR 2309.
 Analysis and design of pressure vessels, selection of materials and introduction to standards and codes for pressure vessels. Safety consideration in vessel design.
- 4307 Fluid Mechanics II (3-3-0)**
Prerequisites: ENGR 3308 or department approval.
 Dimensional analysis, surface resistance, boundary layer theory, drag, lift, turbomachinery, including pumps, compressors, turbines, fluid measurements, channel flow.
- 4311 Heat-Power Applications (3-3-0)**
Prerequisites: ET 3307 or department approval.
 Heat-power cycles, refrigeration systems, gas-vapor mixtures, reactive systems, gas compressors, gas turbines, steam processes and cycles. Humidification/dehumidification processes and use of psychometric charts. Analysis of environmental conditions in fire.
- 4313 Applied Heat Transfer (3-3-0)**
Prerequisites: Credit or enrollment in ET 4307 or department approval.
 Steady and unsteady state conduction, free and forced convection, radiation, heat exchangers and heat transfer with change in phase. Applications to fire analysis.
- 4315 Piping Stress Analysis (3-3-0)**
Prerequisites: ENGR 2409 and ET 2401.
 Introduction to piping stress analysis. Piping and pressure vessel codes, failure theories, stress intensification and flexibility factors, methods of stress analysis, supports and restraints for piping. Intensive application of CAESAR II computer software. Safety aspects of stress analysis.
- 4316 Compressible Fluid Flow (3-3-0)**
Prerequisites: Credit or enrollment in ET 4307.
 Compressible flow of gases in ducts, isentropic flow, effects of friction and heat transfer, normal shock waves, nozzles, diffusers, ejectors and wind tunnels. Fire models.
- 4317 Material and Energy Balances (3-3-0)**
Prerequisites: ET 4311 or department approval.
 Processes and process variables, material balances for single and multi-phase systems. Energy and energy balances for nonreactive, reactive and transient processes.
- 4318 Pumps and Pumping Stations (3-3-0)**
Prerequisite: ENGR 3308.
 Different types of pumps and pump drive units, pump fundamentals, pump construction, performance characteristics of various types of pumps, pump selection, system analysis for a pumping plant, design of pumping station. Pumps for fire protection.
- 4320 Prestressed Concrete (3-3-0)**
Prerequisite: ENGR 3312.
 Principles and practice of prestressed concrete systems and techniques for applying prestress. Computer analysis and design of determinate and indeterminate prestressed concrete structures. Limit analysis and ultimate strength behavior. Critical aspects of prestressing under fire. Rehabilitation of structures. Lightweight prestressed concrete.
- 4321 Structural Steel Design (3-3-0)**
Prerequisite: ENGR 2309.
 Design of structural steel members based on LRFD specifications. Design of members under tension, compression and bending. Laterally unsupported beams. Combined bending and axial loading connections. Nondestructive evaluation of steel structures. Fire protection of steel structures.
- 4322 Foundation Design (3-3-0)**
Prerequisites: ET 3321 and ENGR 2309.
 Introduction to foundation design, factors in bearing capacity and settlements of foundations, lateral earth pressure on retaining walls, bulkheads and pile foundation. Computer applications in foundation engineering. Nondestructive testing of foundations. Safety considerations in foundation construction and performance.
- 4323 Technology Seminar (3-3-0)**
Prerequisites: ENG 3302, senior standing, Writing Proficiency Examination or department approval
 A self enrichment and professional development course essential for a successful career after graduation. Students are required to make oral presentations and submit written reports and essays on topics emphasizing ethical and international dimensions of the engineering profession. Class participation and case discussions are emphasized. Industrial safety considerations.
- 4324 Senior Concrete Design Project (3-3-0)**
Prerequisite: ENGR 3312.
 Conception, analysis and design of complex concrete structures. Application of prestressed concrete, finite element analysis, CADD and foundation engineering to structural design. Includes construction drawings, specifications, cost estimates project management and field trips.
- 4325 Senior Steel Design Project (3-3-0)**
Prerequisite: ET 4321.
 Conception, analysis and design of complex street and composite structures. Application of finite element analysis, AutoCAD and foundation engineering to structural design. Includes construction drawings, specifications, structural composites, cost estimates project management and field trips.
- 4326 HVAC Systems Design I (3-3-0)**
Prerequisites: ET 4311 or instructor approval.
 This is a course covering the basics in the design of heating, ventilating and air conditioning (HVAC) systems for commercial, institutional and medical buildings. Emphasis is placed on fundamental concepts and calculations involved in the design of HVAC systems. The students will complete a design project as part of their course work. Safety of HVAC systems.
- 4380 Field Experience**
 See Field Experience under Student Affairs.

English (ENG)

- 1101 TASP Tutorial (1-1-0)**
 Tutorial instruction designed to prepare students to pass the Writing component of the state-mandated Texas Academic Skills Program examination.

- 1105 Writing Tutorial (1-0-3)**
Prerequisite: Eligibility for ENG 1301 or permission of department.
 Individualized instruction in English composition. Suggested for students who have problems in some aspect of writing and who seek to improve their mastery in particular areas. Instructor designs a course of study to assist student in learning new skills or in overcoming specific errors. Fulfills no English composition degree requirement. Course is offered on a pass/fail basis. May be repeated once without permission of department.
- 1300 Fundamentals of English (3-3-0)**
Placement examination is required.
 Introduction to the writing process, including such elements as awareness of audience, prewriting, organization strategies, revising and editing to conform to the major conventions of standard written English.
- 1301 Composition I (3-3-0)**
Prerequisite: ENG 1300 or placement by examination.
 Review of the writing process, including such elements as audience analysis, invention, drafting and revising. Practice in expository techniques of writing and attention to readings. (ENGL 1301)
- 1302 Composition II (3-3-0)**
Prerequisite: ENG 1301 or placement by examination.
 A continuation of ENG 1301; emphasis on writing based on research. (ENGL 1302)
- 1318 Introduction to the Study of English Grammar**
 Introduction to basic grammar concepts and terminology through exploration of language variation and language systems.
- 2301 Literature of the Western World: Ancient to Renaissance (3-3-0)**
Prerequisite: ENG 1302.
 A study of literature of the Western world from its beginnings through the Renaissance. (ENGL 2332)
- 2302 Literature of the Western World: Neo-Classical to Modern (3-3-0)**
Prerequisite: ENG 1302.
 A study of literature of the Western world from the 17th century to the present. (ENGL 2333)
- 2311 Survey of American Literature: Beginnings to 1865 (3-3-0)**
Prerequisite: ENG 1302.
 A study of American literature from the Colonial period through the Civil War. (ENGL 2327)
- 2312 Survey of American Literature: 1865 to Present (3-3-0)**
Prerequisite: ENG 1302.
 A study of American literature from 1865 to the present. (ENGL 2328)
- 2313 Survey of British Literature: Beginnings to 1800 (3-3-0)**
Prerequisite: ENG 1302.
 A study of British literature from its beginnings through the 18th century. (ENGL 2322)
- 2314 Survey of British Literature: 1800 to Present (3-3-0)**
Prerequisite: ENG 1302.
 A study of British literature from the 19th century to the present. (ENGL 2323)
- 3302 Business and Technical Report Writing (3-3-0)**
Prerequisite: 3 hours of literature.
 Study and practice of formal and informal presentation of technical information, with emphasis on report writing.
- 3304 Advanced Business and Technical Report Writing (3-3-0)**
Prerequisite: ENG 3302 or permission of department.
 Practice in writing in varied professional contexts. Special attention is given to audience and purpose, tone, logic and accuracy.
- 3305 Essay Writing (3-3-0)**
 (Formerly ENG 4305)
Prerequisites: ENG 1302 and junior standing.
 Study, analysis and practice of advanced rhetorical principles in non-fiction, with a view to increasing clarity, effectiveness and precision in a student's personal style.
- 3306 Introduction to Literary Theory (3-3-0)**
Prerequisite: 3 hours of literature.
 A study of contemporary methodologies in literary criticism and practice in applying them.
- 3307 Shakespeare (3-3-0)**
Prerequisite: 3 hours of literature.
 Reading and analysis of representative comedies, tragedies, histories and poems by Shakespeare, with special consideration of his life and the historical context.
- 3308 Legal Writing (3-3-0)**
Prerequisite: 3 hours of literature
 A study of the principles of analytical writing, with special emphasis on the strategies of legal persuasion and the techniques and appropriate style of legal writing. Students will learn to brief (summarize) published cases as well as to write legal memoranda.
- 3309 Creative Writing (3-3-0)**
Prerequisites: ENG 1302 and junior standing.
 Techniques of writing fiction and poetry; emphasis on the student's own work. May be repeated once for credit.
- 3310 Studies in Nonfiction Writing (3-3-0)**
Prerequisite: 3 hours of literature.
 An examination of a variety of nonfiction texts, including news presentations, books, and movies.
- 3311 Studies in Poetry (3-3-0)**
Prerequisite: 3 hours of literature.
 A study of poetry as a genre of literature, with emphasis on forms and styles; reading and analysis of poems from a variety of periods.
- 3312 Studies in Fiction (3-3-0)**
Prerequisite: 3 hours of literature.
 A study of short stories and/or novels. Consideration of the historical development of fiction as a genre and detailed analysis of the elements of fiction.
- 3313 Studies in Dramatic Literature (3-3-0)**
Prerequisite: 3 hours of literature.
 A study of representative plays from ancient to modern times, with emphasis on the origins and historical development of drama and its characteristics as a genre.

- 3314 Studies in Autobiography (3-3-0)**
(Cross-listed as HUM 3314)
Prerequisite: 3 hours of literature
A study of autobiographical writing, the course may analyze its forms or techniques, trace a topic or style of autobiographical literature or investigate critical problems posed by autobiography. Credit may not be earned for both ENG 3314 and HUM 3314.
- 3315 Studies in Science Fiction (3-3-0)**
Prerequisite: 3 hours of literature
A study of the conventions, major themes and/or history of futuristic or fantasy fiction.
- 3316 History of Rhetoric (3-3-0)**
Prerequisites: ENG 1302 and junior standing.
An historical survey of rhetoric with emphasis upon its development as a discipline from Plato and Aristotle to the present day.
- 3317 Studies in the Theory of Rhetoric (3-3-0)**
Prerequisites: ENG 1302 and junior standing.
An investigation of major contemporary theories of rhetoric and composition with special attention to the implications of those theories on the practices of writers.
- 3318 Studies in English Grammar(3-3-0)**
Prerequisites: 3 hours of literature
An intensive survey of the principles and problems of English grammar with emphasis on developing vocabulary and understanding necessary to identify and explain writing choices and errors.
- 3319 Introduction to the Study of Language (3-3-0)**
Prerequisites: ENG 1302 and junior standing.
An introduction to linguistic sciences. The course gives an overview of language, its use and development. Basic concepts covered are approaches to grammatical description, history, acquisition and social and regional variation.
- 3320 History of the English Language (3-3-0)**
Prerequisites: ENG 1302 and junior standing.
A study of the development of English speech, writing, spelling, syntax and vocabulary.
- 3321 African-American Literature (3-3-0)**
Prerequisite: 3 hours of literature.
A survey of prose, plays and poems by African-American writers.
- 3322 Mexican-American Literature (3-3-0)**
Prerequisite: 3 hours of literature.
A study of Mexican-American literature and its cultural traditions from pre-Columbian Mexico to the present.
- 3323 Technology and Literature (3-3-0)**
(Cross-listed as HUM 3323)
Prerequisite: 3 hours of literature.
The course may study influences of technology or science on literature, analyze how literature represents technology, or interpret literature as a reflection of social ambivalence toward technology. Credit may not be earned for both ENG 3323 and HUM 3323.
- 3324 American Ethnic Heritage (3-3-0)**
(Cross-listed as HUM 3304.)
Prerequisite: 3 hours of literature.
An interdisciplinary study of ethnic contributions to the art, music, drama and literature of the United States. Credit may not be earned for both ENG 3324 and HUM 3304.
- 3325 Medical Writing (3-3-0)**
Prerequisite: 3 hours of literature
The study and practice of interpreting and incorporating findings and statistical results into clear, comprehensible and well-organized prose.
- 3326 Proposal Writing (3-3-0)**
Prerequisite: ENG 3302
Practice in writing and editing a series of proposals of varying scope and complexity.
- 3328 Documentation and Manuals (3-3-0)**
Prerequisite: ENG 3302
Application of general rhetorical principles and current theory in document design to the development of procedures manuals and other documentation.
- 3329 Environmental Writing (3-3-0)**
Prerequisite: 3 hours of literature
Practice in presenting information about environmental issues as addressed by government, industry, private organizations and the mass media.
- 3330 Desktop Publishing (3-3-0)**
Prerequisite: ENG 3302 or concurrent enrollment in ENG 3302 or permission of department.
An introduction to desktop publishing, covering specific applications of typography, graphics, layout and presentation, and using desktop publishing software.
- 3331 Advanced Desktop Publishing (3-3-0)**
Prerequisite: ENG 3330 or permission of department.
A continuation of desktop publishing techniques using additional software for more complex projects.
- 3332 Newsletters (3-3-0)**
Prerequisite: ENG 3302
Guided practice in designing, writing, editing and producing a newsletter; the course operates as a practicum, with students working cooperatively to produce an actual newsletter.
- 3333 Writing for the Media (3-3-0)**
(Cross-listed as COMM 3311)
Prerequisites: ENG 1302 and either COMM 1302 or ENG 3302.
Study and practice of writing techniques appropriate to print and broadcast media with emphasis on the relevance of these skills to managing media relations. Credit may not be earned for both ENG 3333 and COMM 3311.
- 3334 Writing for Presentation (3-3-0)**
(Cross-listed as COMM 3312)
Prerequisites: ENG 1302 and either COMM 1302 or ENG 3302.
This course covers writing for the media employed for presentations in business, industry and the professions. Possible course focuses include videoscripting, speech-writing and writing for slide and multimedia presentations. Credit may not be earned for both ENG 3334 and COMM 3312.

- 3340 Cultural Criticism (3-3-0)**
(Cross-listed as HUM 3310.)
Prerequisites: 3 hours of literature and 3 hours of philosophy.
 A survey of different ways of analyzing human culture. Students examine major schools of criticism and interpretation of society and its creative activity. This course is the gateway course for the BA in Humanities. May be repeated once for credit as topic varies. Credit may not be earned for both ENG 3340 and HUM 3310.
- 3350 Gender Studies in Literature (3-3-0)**
Prerequisite: 3 hours of literature.
 An interdisciplinary study of the social construction of gender as reflected in literature from various historical periods and from various cultures.
- 3351 Children's Literature (3-3-0)**
Prerequisite: 3 hours of literature.
 This course introduces students to children's literature, its history, development, and uses in relation to the needs of the child and the culture.
- 3352 Introduction to Folklore (3-3-0)**
Prerequisites: 3 hours of literature.
 An introduction to the development of cultural studies and to the methodology of field research.
- 3353 Social Class and Literature (3-3-0)**
Prerequisites: 3 hours of literature.
 A study of the role of social class in literary representation, production, and consumption.
- 3354 Film as Narrative (3-3-0)**
Prerequisite: 3 hours of literature.
 A study of film as narrative, either fiction or non-fiction, and organized by topic, historical development, genre, or critical approach.
- 3355 Young Adult Literature (3-3-0)**
Prerequisite: 3 hours of literature.
 A study of texts written for readers from middle school through high school. The course emphasizes the history of texts written for young adults and examines and employs various theoretical approaches to textual analysis, including cultural critique of both classic and contemporary examples.
- 3399 Directed Study in English**
Prerequisite: Formal approval by department chair and dean.
 Intensive individual study of a selected topic under the guidance of a member of the faculty.
- 4101 Proseminar in Professional Writing (1-1-0)**
Prerequisite: ENG 3302.
 A capstone course for Professional Writing majors; an overview of possibilities for further education and employment. Review of graduate programs and the application process; preparation for the job search, with special emphasis on assembling a portfolio.
- 4105 Senior Capstone Project (1-1-0)**
Co-requisite: Enrollment in an upper-level English course and an approved project.
 A capstone course for English majors. Under the supervision of the instructor of the co-requisite course, students complete a project exemplifying creative and critical skills acquired as an English major.
- 4306 Science Writing (3-3-0)**
Prerequisites: 3 hours of literature
 The study and practice of documenting, reporting and presenting science in articles, audiovisual scripts, specifications, reports and proposals.
- 4309 Advanced Creative Writing (3-3-0)**
Prerequisite: ENG 3309 or permission of instructor.
 Extended writing projects in poetry, fiction, and/or creative non-fiction. Emphasis on the practice of editing and publication. May be repeated once for credit, with permission.
- 4311 Contemporary Literature (3-3-0)**
Prerequisite: 3 hours of literature.
 A study of the themes and techniques of prominent 20th-century writers. Readings seek to identify and explore emerging traditions in literature since 1950.
- 4312 Literature of the South and Southwest (3-3-0)**
Prerequisite: 3 hours of literature.
 A study of Southern or Southwestern literature, the course may focus on a literary genre, region, topic, or critical approach.
- 4313 Psychology through Literature (3-3-0)**
(Cross-listed as HUM 4313)
Prerequisite: 3 hours of literature.
 The course adopts psychological theory as a methodology for studying literature and its cultural contexts. Credit may not be earned for both ENG 4313 and HUM 4313.
- 4314 Major Authors (3-3-0)**
Prerequisite: Six hours of literature.
 An in-depth study of one or two significant authors.
- 4318 Advanced Studies in English Grammar and Style**
Prerequisite: ENG 3318 or permission of the instructor
 Writers will learn how to manipulate language structure and styles and will analyze the rhetorical implications for interpretation, acceptance, and understanding by various audiences.
- 4321 Advanced African-American Studies (3-3-0)**
Prerequisite: 6 hours of literature or ENG 3321.
 A specialized exploration of the aesthetic, critical, and theoretical bases of African-American literature-poetry, fiction, drama, and creative non-fiction.
- 4322 Editing, Rewriting and Copyreading (3-3-0)**
Prerequisite: ENG 3302 or permission of department.
 Fundamentals of editing for printed media. Studies in clarity, concision, accuracy, grammar and stylebook conventions. Projects include rewriting, copy editing and copy reading documents of varying complexity.
- 4323 Feature Writing for Business and Industry (3-3-0)**
Prerequisite: ENG 3302 or permission of department.
 Procedures in recognizing ideas and gathering material for feature stories for business and industry; analysis of reader appeal; study of feature story structure; development of style by practice in writing feature stories.

- 4325 Advanced Mexican-American Studies (3-3-0)**
Prerequisite: 6 hours of literature or ENG 3322.
 Specialized, focused study of the culture of literature by Mexican-Americans.
- 4330 Senior Seminar in the Humanities (3-3-0)**
(Cross-listed as HUM 4350.)
Prerequisites: Senior standing and 18 upper-division hours in the humanities, including HUM 3310/ENG 3340. Credit may not be earned for both ENG 4330 and HUM 4350.
 A review of key issues in interpretation and understanding from philosophy, literature, history and the arts. It aims to provide students with means for synthesizing their studies in the liberal arts. This course is the capstone for the BA in Humanities.
- 4350 Advanced Gender Studies (3-3-0)**
Prerequisites: 6 hours of literature or ENG 3350.
 Specialized investigation of the role of gender in literary representation and in culture.
- 4360 Publications Workshop (3-3-0)**
Prerequisite: ENG 3302.
 This course provides students an opportunity to gain hands-on print production experience. Working in the offices of student publications or other appropriate environments, students will write, edit and produce materials for publication, using word processing, graphics and electronic pagination software to prepare camera-ready materials.
- 4380 Field Experience**
Prerequisites: ENG 3304 and ENG 3331 and permission of department.
 Placement of selected students in jobs involving professional writing within the public or private sector. Jobs may be paid or unpaid. Written reports, conferences with the instructor and other academic work are required. May be repeated once for credit.
- 4390 Topics in Language and Literature (3-3-0)**
Prerequisites: 3 hours of literature and junior standing.
 Selected topics in language and/or literature. May be repeated when topic varies.
- 6301 Composition Pedagogy (3-3-0)**
Prerequisites: Post-baccalaureate standing and 6 hours of upper-division language or writing courses.
 Composition theory, technology, and assessment as guides for teaching practices.
- 6306 Methods of Reading and Writing about Literature (3-3-0)**
Prerequisites: Post-baccalaureate standing and 6 hours of upper-division literature courses
 This course compares the theory and practice of two or three strategies for interpreting literature, such as formalism, reader-response, and cultural studies.
- 6307 Advanced Shakespeare (3-3-0)**
Prerequisites: Post-baccalaureate standing and 6 hours of upper-division literature courses.
 An in-depth study of four or five plays by Shakespeare, with attention to their literary and intellectual backgrounds, performance/film history, and contemporary critical approaches.

- 6319 Language Development and Variation: Implications for Educators (3-3-0)**
Prerequisites: Post-baccalaureate standing and 6 hours of upper-division language or writing courses.
 An examination of language development and its relevance to skills required in an educational environment. The course will focus on sound patterns, word formation patterns, sentence structures, and writing systems and standards. It will also address ways in which language variation and multilingualism can interact with and affect development and acquisition of a standard variety.

Finance (FIN)

- 1301 Personal Finance (3-3-0)**
Prerequisite: Completion and/or concurrent enrollment in MATH 1300.
 This course addresses all financial decisions a person will make over his/her lifetime. Topics covered would include choice of personal insurance, investments, retirement planning, purchase of long-term assets, etc.
- 2301 Principles of Real Estate (3-3-0)**
 (Formerly RE 2301. Student cannot receive credit for both courses) (3-3-0)
Prerequisite: MATH 1300.
 An introduction to all phases of real estate: ownership, appraisal, law, financing, land use analysis, taxation, investments and property management. Operation of the real estate market, urban growth, city structures and land use planning are also studied. (REAL 1301)
- 3301 Small Business Finance (3-3-0)**
Prerequisites: ECO 2301, ACC 2302 and junior standing.
 Application of basic financial management principles to the small business with particular emphasis to access of funds, venture capital and efficient management of cash and working capital.
- 3302 Business Finance (3-3-0)**
Prerequisites: ACC 2302, ECO 2301, ECO 2302 and completion of or concurrent enrollment in MATH 3309 and junior standing.
 Application of financial management techniques to profit-oriented organizations: measuring of needs for business funds, acquiring business funds, investing business funds and elements of international finance.
- 3305 Money and Banking (3-3-0)**
Prerequisites: ECO 2301, ECO 2302 and junior standing.
 Role and impact of banking on a market-oriented economic system.
- 3306 Risk Management (3-3-0)**
Prerequisite: FIN 3302.
 Theories of risk management, including diversification, retention, avoidance, prevention, self-insurance, transfer and insurance as related to current financial practices of business firms and individuals.

- 3307 Financial Institutions (3-3-0)**
Prerequisite: FIN 3302.
 The relationship of financial institutions and their participation in financial markets. Interest rates and monetary and fiscal management are explored and monitored via current events.
- 3309 Quantitative Methods in Finance (3-3-0)**
Prerequisites: Grade of "C" or better in MATH 3309.
 Advanced quantitative and statistical techniques used for analysis and research purposes in the area of finance and investments.
- 3311 Real Estate Valuation (3-0-0)**
 (Formerly RE 3301. Student cannot receive credit for both courses.)
Prerequisite: Junior standing
 Introduction to the fundamental principles of real estate valuation. Identification of the elements of economics and urban land economics which underlie the theory of value for real estate. The course emphasizes and analyzes the steps in real property appraisal from elementary analysis to sophisticated income property analysis.
- 3312 Management of Real Property (3-0-0)**
 (Formerly RE 3302. Student cannot receive credit for both courses.)
Prerequisite: FIN 2301.
 Management techniques applicable to income producing properties. Special emphasis on leases, lease negotiations, ownership, insurance, taxation of industrial and commercial properties.
- 3313 Real Estate Finance (3-0-0)**
 (Formerly RE 3303. Students cannot receive credit for both courses.)
Prerequisite: FIN 3301.
 A study of real estate financing topics from both lender's and equity investor's viewpoints, with emphasis on analyzing residential and income properties. Various types of financing are considered and analyzed with respect to specific property types: residential, apartments, shopping centers, office buildings, industrial properties and special use properties. Includes computer applications.
- 3399 Directed Study in Finance**
Prerequisite: Formal approval by department chair and dean.
 Selected topics in finance; intensive individual study under the guidance of a member of the finance faculty.
- 4301 Cases in Managerial Finance (3-3-0)**
Prerequisite: FIN 3302.
 The case method approach is used to provide a learning experience through the simulation of decision-making in a managerial finance setting.
- 4303 International Finance (3-3-0)**
Prerequisite: FIN 3302.
 This course addresses the area of finance in the international context. This course will help students understand international financial markets, international business finance and international investments.
- 4304 Management of Financial Institutions (3-3-0)**
Prerequisites: FIN 3302 and FIN 3307.
 Institutional policies and their interrelationships; acquisition and management of funds, maximizing earnings consistent with an acceptable degree of risk.
- 4305 Investments (3-3-0)**
Prerequisite: FIN 3302.
 Principles, types and forms of investments; supply and demand for funds; characteristics of securities; federal, state and municipal bonds; analysis of securities; and the movement of security prices.
- 4306 Employee Benefits and Retirement Planning (3-3-0)**
Prerequisite: FIN 3302.
 Pension plan design, other employee benefits, social security benefits and financial planning for employee retirement.
- 4307 Derivative Securities (3-3-0)**
Prerequisite: FIN 3302.
 An introduction to the rapidly expanding derivatives market. The course explores hedging techniques through the use of options, futures and swaps.
- 4309 Seminar in Finance (3-3-0)**
Prerequisites: FIN 3302 and senior standing.
 An opportunity for the student to become aware of the latest changes affecting finance and to integrate the subject matter learned in prior academic years.
- 4310 Portfolio Management (3-3-0)**
Prerequisite: Completion of or concurrent enrollment in FIN 4305.
 Investment practices of financial institutions: commercial banks, savings and loan associations, credit unions, pension funds, life insurance companies and investment companies. Focus on portfolio practices to maximize yield, subject to liquidity and regulatory constraints.
- 4311 Income Property Valuation (3-3-0)**
 (Formerly RE 4301. Students cannot receive credit for both courses.)
Prerequisite: FIN 3311.
 Advanced course in appraisal of income producing properties. Topics include analysis and decision-making, problem solving techniques and research designs for the appraisal of properties. Statistical applications will be stressed with computer applications.
- 4316 Real Estate Investments and Taxation (3-0-0)**
 (Formerly RE 4306. Students cannot receive credit for both courses.)
Prerequisite: FIN 3302.
 Real estate investment decisions and the variables which affect real estate values. Mathematical techniques and application, utilizing computer financial models for real estate investment analysis.
- 4320 Financial Planning (3-3-0)**
Prerequisite: FIN 3306, FIN 4305 and FIN 4306, or department's permission.
 Financial planning capstone course focusing on the elements of personal finance, investments, insurance, retirement and estate planning. (Certified Financial Planner) exam.

4390 Special Topics in Finance (3-3-0)

Prerequisite: Junior standing.

Topics of special or current interest in the area of finance taught by faculty or visiting lecturers who possess a special area of expertise.

French (FREN)

1401 Elementary French I (4-3-1)

Should not be taken by native speakers of French or by students with two or more years of high school French.

Laboratory fee required. \$10.

Instruction in understanding, speaking, reading and writing French with emphasis on grammatical structures. (FREN 1411)

1402 Elementary French II (4-3-1)

Prerequisite: FREN 1401 or equivalent.

Should not be taken by native speakers of French or by students with two or more years of high school French.

Laboratory fee required. \$10.

A continuation of FREN 1401, with emphasis on speaking and listening skills. (FREN 1412)

2301 Intermediate French I (3-3-0)

Prerequisite: FREN 1402 or equivalent.

Should not be taken by native speakers of French.

Grammar review with continued emphasis on oral and listening skills and increased attention to writing and reading. (FREN 2311)

2302 Intermediate French II (3-3-0)

Prerequisite: FREN 2301 or equivalent.

Should not be taken for credit by native speakers of French.

Continuation of FREN 2301, with more emphasis on writing and reading skills. (FREN 2312)

3399 Directed Study in French (3-3-0)

Prerequisites: Junior standing; formal approval by department chair and dean; cumulative GPA of 3.0 and GPA of at least 3.3 in the specific area of directed study.

Selected topics in the field; intensive individual study under the guidance of a faculty member.

Geography (GEOG)

1301 Introduction to Geography (3-3-0)

This course provides the student with exposure to the basic concepts and subdivisions of the discipline of Geography. In addition to providing basic literacy in the discipline, the course shows how an understanding of geography aids one's ability to evaluate the reasons behind the physical patterns of contemporary life.

1302 World Geography (3-3-0)

Key geographic topics of location, population, political status, natural environment, economy, potentialities and problems as they relate to major geographic regions are discussed. (GEOG 1303)

6301 World Cultural Geography (3-3-0)

Prerequisite: Graduate standing.

This course examines the interactions among people, cultures, and natural surroundings. Selected regions in the world will be explored for the dynamic patterns they reveal in the relationships among population, social organization, environment and technology. Focal topics include language, dialect, architecture, religion, cultural aspects of cities, economics, agriculture, medicine, resources, politics, and their connection to physical/topographic features.

Geology (GEOL)

1105 Physical Geology Laboratory (1-0-3)

Prerequisite: Credit or enrollment in GEOL 1305.

Laboratory fee required. \$12.

Study of the important rock-forming and economic minerals, the major groups of rocks; introduction to topographic maps and the evolution and classification of landforms. (GEOL 1103)

1106 Historical Geology Laboratory (1-0-3)

Prerequisite: Credit or enrollment in GEOL 1306.

Laboratory fee required. \$12.

Study of regional and local geologic maps, cross-sections, correlations and sequence of events diagrams, and identification of the more common groups of invertebrate fossils. (GEOL 1104)

1305 Physical Geology (3-3-0)

Prerequisite: Credit or enrollment in GEOL 1105 and credit or enrollment in MATH 1301 or MATH 1310.

Examination of the materials that make up our planet, the forces that drive its dynamic systems and form its crust, and the agents that shape the earth's surface. Credit for both GEOL 1305 and 1307 may not be applied toward a degree. (GEOL 1303)

1306 Historical Geology (3-3-0)

Prerequisite: GEOL 1305 and credit or enrollment in GEOL 1106.

The history of geology and development of concepts about the history of our planet, how geologists interpret earth history, introductory paleontology and the history of life. (GEOL 1304)

1307 Earth Science I (3-2-2)

Laboratory fee required. \$12.

An integrated lecture-laboratory approach to physical geology that will employ traditional and specimen approaches along with petrography and computer exercises. Geomorphology and structural geology will be integrated with basic map reading and will consider public debates on seismic risk analysis, coastal erosion, stream/flood control, and the influences these have on modern culture. Credit for both GEOL 1305 and 1307 may not be applied toward a degree. (GEOL 1303)

1308 Earth Science II (3-2-2)

Prerequisite: GEOL 1307 or equivalent.

Laboratory fee required. \$12.

An integrated lecture-laboratory approach to historical geology that will employ hand specimen and other techniques for the identification of fossils and will include major controversies involving the tempo and mode in

evolution as well as discussion of the origin of life and coevolution of our planet and life on it. Exercises will teach principles of structure geology, sequence of events, fundamental stratigraphic concepts and graphic correlation. These various structural and stratigraphic analyses will be united in interpretation of geologic maps and their application to human culture. (GEOL 1304)

1309 Dinosaurs and the Mesozoic World (3-3-0)

A paleobiological study of the reptiles popularly known as dinosaurs along with the biotic and abiotic aspects of the environments during the time in which they lived.

3300 Undergraduate Research (3-0-9)

Prerequisites: Approval by science advisor and a minimum GPA of 2.5, and permission of instructor. Independent investigation of a specific problem or topic in geology research under the direction of a selected faculty member.

3301 Evolution of the Earth and Its Inhabitants (3-3-0)

Prerequisites: One year of biology or geology. Analysis of the concepts and discoveries that led Darwin to propose his Theory of Natural Selection to explain evolution and the subsequent lines of evidence in both geology and biology that substantiate his ideas and unify our understanding of the relationships of various organisms to each other. Specific groups of organisms will be discussed in relation to morphological changes through time as well as adaptations that may occur due to environmental changes and other variables.

3303 Environmental Geology (3-3-0)

Prerequisites: BIOL 1302/1102, CHEM 1308/1108 and GEOL 1306/1106. Analysis of the influence geology has on the formulation of public policy. Topics to be included are surface/sub-surface water quality and quantity, flood control and navigation, shoreline processes, subsidence, mineral resources and impact from their extraction, waste disposal and geologic hazards such as earthquakes, vulcanism and mass movements.

3399 Directed Study in Geology

Prerequisite: Formal approval by department chair and dean. Selected topics in geology; intensive individual study under the guidance of a member of the geology faculty.

3402 Stratigraphic Concepts and Procedures (4-3-3)

Prerequisites: GEOL 3411.
Laboratory fee required. \$12. An introduction to the physical and biological aspects of the classification and interpretation of primarily stratiform rocks.

3411 Paleontology (4-3-3)

Prerequisites: GEOL 1306 and GEOL 1106.
Laboratory fee required. \$12. A paleobiologic approach to the major taxa of invertebrate fossils emphasizing their morphology, biotic relationships, paleoecology and evolution.

3412 Structural Geology (4-3-3)

Prerequisites: GEOL 1305/1105 and 1306/1106 or GEOL 1307 and 1308

Laboratory fee required: \$12.

Genesis, classification, and recognition of geologic structures. Fundamental concepts of tectonics, origin, arrangement and distribution of rock masses that form the Earth's crust.

4190 – Selected Topics in Geology

4490 *Prerequisites: Upper-level standing; will vary according to topic offered.*

Selected topics in upper-level geology according to the needs and interests of the students. Example topics include micropaleontology and extraterrestrial geology.

4260 Environmental Laboratory and Field Studies (2-0-6)

Prerequisites: credit for BIOL 1302/1102, CHEM 1308/1108, GEOL 1306/1106 and credit or enrollment in BIOL 4360, CHEM 3320 or GEOL 3303.
Laboratory fee required: \$24. Intensive laboratory and field investigations to illustrate principles and current concepts presented in BIOL 4360, CHEM 3320 and GEOL 3303 by sampling, measuring and analyzing biological, chemical and physical factors of select environments, with emphasis on the activities of humans and their effects on the ecosystem.

4325 Advanced Microscopy (3-1-6)

Prerequisites: 16 hours of laboratory-based science which includes 8 hours at the upper level, and approval of course instructor. Laboratory fee required. \$24 Instrumentation principles and laboratory exercises associated with the applications of a variety of microscopes and associated techniques, including preparation of samples, light microscopy (bright-field, dark-field, phase-contrast, polarized and fluorescent), scanning electron microscopy, transmission electron microscopy, and X-ray microanalysis.

4399 Senior Honors Thesis

Prerequisites: Senior standing and enrollment in the Honors Program in the Natural Sciences. A research project, supervised by a member of the natural science faculty or scientist at an affiliated research institution or laboratory. The completed research project must be presented in both written and oral form to the science faculty. No more than six hours credit for this course may be applied toward a degree.

History (HIST)

1305 United States History to 1877 (3-3-0)

Prerequisite: Enrollment in or completion of ENG 1301. Traces the growth and development of the United States from Colonial origins through independence, the establishment of the republic, territorial expansion, Civil War and Reconstruction. (This course satisfies three of the six hours of American history mandated by the state of Texas.) (HIST 1301)

1306 United States History after 1877 (3-3-0)

Prerequisite: Enrollment in or completion of ENG 1301. Traces the development and growth of the United States

- from the end of Reconstruction through industrialization, overseas expansion, global wars, the Great Depression and the post-World War II era. (This course satisfies three of the six hours of American history mandated by the state of Texas.) (HIST 1302)
- 2303 Texas History (3-3-0)**
Prerequisite: Enrollment in or completion of ENG 1301.
 Texas from pre-Colonial origins to the present. Emphasis on social, economic and ethnic influences which have shaped modern Texas. (This course satisfies three of the six hours of American history mandated by the state of Texas.) (HIST 2301)
- 2309 Ethnic Minorities in American History (3-3-0)**
Prerequisite: Enrollment in or completion of ENG 1301.
 The history of race and national origins as important elements in American history. Emphasis on Black, Hispanic, Asian, European and native American groups and the strategies used to address their conditions. (This course satisfies three of the six hours of American history mandated by the state of Texas.) (HUMA 2319)
- 3301 Europe in Crisis (3-3-0)**
Prerequisites: Six hours in U.S. history and junior standing.
 Problems in foreign and domestic policies faced by Europe since 1914. Major topics examined within the European context include problems caused by World War I and the Versailles Peace Treaty, the effects of the Depression, World War II and its aftermath, the disintegration of colonial empires and Europe's adjustment to its new role in world affairs.
- 3303 Modern American Social Protest: 1890s to the Present (3-3-0)**
Prerequisites: Six hours in U.S. history and junior standing.
 A course in 20th century U.S. social history. Social problems, social change, social movement and social policies are seen in historical perspective. Focus of the course varies each time course is offered.
- 3304 The Vietnam War (3-3-0)**
Prerequisites: Junior standing and three hours of history.
 This course discusses the background to one of the most divisive issues of 20th century America; explains why the United States enmeshed itself in this conflict and how it extricated itself. The diplomatic, political and social aspects of the war and its effect on the people of both countries is discussed.
- 3305 The United States, 1900-1945 (3-3-0)**
Prerequisites: Six hours in U.S. history and junior standing.
 Historical development from the beginning of the 20th century to the end of World War II. Reform movements and their impact on the American society. The Populist and Progressive movements, the New Deal, the Depression and the impact of war on the society.
- 3306 U.S. Diplomatic History (3-3-0)**
Prerequisites: Junior standing and three hours of history.
 This course explains the relationships of the United States with other countries and explains the importance of these connections on the growth of America's political and commercial power.
- 3308 History of Mexico (3-3-0)**
Prerequisites: Six hours in U.S. history and junior standing.
 Mexico from its Indian origins to its present position as a burgeoning American power. The influence of the nation's cultural heritage and the reformist impulses of the 19th and 20th centuries.
- 3309 20th Century England (3-3-0)**
Prerequisite: Junior standing.
 A history of modern England focusing on political, cultural, social, literary, and economic issues.
- 3310 Russia in Transition (3-3-0)**
Prerequisites: Six hours in U.S. history and junior standing.
 A study of the change and continuity in politics, literature and society in Russia and the former Soviet Union since 1890.
- 3311 U.S. Military History (3-3-0)**
Prerequisites: Junior standing and three hours of history.
 This course examines how warfare has affected our nation's existence, why American wars have occurred, the effect of the evolution of weapons upon America's wars and the perspective of the soldier on the front line.
- 3312 Readings in Texas History (3-3-0)**
Prerequisites: Junior standing and three hours of history.
 An interpretative study of significant social, cultural, political and economic issues in Spanish Texas, the Republic and statehood.
- 3313 Houston: Past and Present (3-3-0)**
Prerequisites: Junior standing.
 A history of Houston from its founding by the Allen brothers in 1836 to the present. Political, cultural, social and economic issues are emphasized.
- 3314 The Civil War and Reconstruction (3-3-0)**
Prerequisites: Junior standing and three hours of history.
 The course examines the background nature of this conflict with emphasis on its escalation toward total war, the final defeat for the South and the reconstruction period that followed.
- 3315 World History to 1500 AD (3-3-0)**
Prerequisite: Junior standing.
 This course is an overview of the development of the world's major civilizations from the earliest times through the European renaissance. The major focus will be on developments in the West, but societies in China, India, southwest Asia, and Africa will be examined too.
- 3316 World History Since 1500 AD (3-3-0)**
Prerequisite: Junior standing.
 A continuation of HIST 3315. This course examines the development of societies in and beyond Europe since the Protestant Reformation. Special emphasis is given to the emergence of modern or developed forms of social,

economic, and political organization and their spread across the globe after the mid-nineteenth century.

3317 Middle Eastern History (3-3-0)

Prerequisite: Six hours in U.S. History and junior standing.

This course will trace the history of the Middle East from the time of the Prophet Mohammed, through the rise of Islam, the period of the Caliphates, the Crusades, the Ottoman Empire, the era of European imperialism, the birth of Israel, and modern Arab nationalism.

3318 Latin American History (3-3-0)

Prerequisite: Six hours in U.S. History and junior standing.

This course covers the history of Latin America from pre-Columbian civilizations, through the conquistadors, the colonial period, and the wars of independence. The primary focus of the course is the 19th and 20th centuries.

3319 African American History to 1865 (3-3-0)

Prerequisite: Six hours in U.S. History and junior standing.

Historical analysis of the experience of blacks in West Africa before European contact and the impact of African Americans upon the formation and development of America to 1865. This analysis includes the study of slavery, race relations, urbanization, war, politics, economics, and civil rights.

3320 African American History since 1865 (3-3-0)

Prerequisite: Six hours in U.S. History and junior standing.

Historical analysis of the African American contribution and experience in the formation and development of America since 1865: This analysis includes the study of race relations, urbanization, war, politics, economics, and civil rights.

3321 The African American in Sports (3-3-0)

Prerequisites: Junior standing.

An historical analysis of the relationship between the African American struggle for equality and participation in sports.

3390 History Research and Writing Seminar

Prerequisites: 6 hours of history and junior standing.

This course is designed for history majors and minors to provide training in methods of historical research, historiography, and exposition. It will include library and archival research with emphasis on the use of primary and secondary sources and will culminate in a history research project or projects.

3399 Directed Study in History (3-3-0)

Prerequisites: Junior standing; formal approval of department chair and dean; cumulative GPA of 3.0 and GPA of at least 3.3 in the specific area of directed study.

4301 The United States Since 1945 (3-3-0)

Prerequisites: Six hours in U.S. history and junior standing.

Historical development of the United States since World War II. The rise and decline of the Cold War, the Civil Rights movement, diplomatic, political and social issues.

4303 U.S. Women's History (3-3-0)

Prerequisite: Junior standing

A study of the social, economic and political impact of women on United States history from its founding to the present.

4304 History of the Old South to 1865 (3-3-0)

Prerequisites: 6 hours in U.S. History and junior standing.

A history of the southern states from the Colonial era through the Civil War. Special emphasis is given to slavery, social and political theory.

4305 History of the New South from 1865 (3-3-0)

Prerequisites: 6 hours in U.S. History and junior standing.

A history of the southern states from the beginning of Reconstruction to the present with emphasis on race, gender and class as the South copes with modernization. Special attention is given to industrialization, urbanization and the Civil Rights Movement.

4312 History of Modern China (3-3-0)

Prerequisite: Junior standing.

A history of China from the late China dynasty to the post-revolutionary period of today. Political, cultural, social, and economic issues are emphasized.

4390 Special Topics in History (3-3-0)

Prerequisites: Six hours in U.S. history and junior standing.

Selected topics in U.S., world, social and intellectual history. Course may be repeated for credit when topics vary.

6301 Seminar in Modern European History (3-3-0)

Prerequisite: Graduate standing.

This course examines European history from the turn of the twentieth century to the end of the Cold War. Special emphasis will be placed on the two world wars, as well as the interwar period. Focal topics for readings and discussion will include: diplomacy, economics, war social issues, totalitarianism, and propaganda.

6302 Seminar in U.S. History (3-3-0)

Prerequisite: Graduate standing.

This course examines major topics in U.S. history with emphasis on social, cultural and political issues. This is a topics course and the material covered will vary.

6303 Seminar in Texas History (3-3-0)

Prerequisite: Graduate standing.

This course examines Texas history from its Spanish origins to U.S. statehood. The emphasis will be on social, cultural, political, and economic issues.umanities

Humanities (HUM)

2305 Computer Applications in Humanities and Social Sciences (3-3-0)

Prerequisite: ENG 1302.

An overview of computer hardware and software applications for students in programs in the humanities, English, social sciences, and teacher certification. The course emphasizes hands-on experience in word pro-

cessing, desktop publishing, educational software and multimedia.

3301 Foundations of Western Culture I (3-3-0)

Prerequisite: Three hours of literature.

A philosophical study of major literary, historical, artistic and scientific events and personalities that have contributed to the ideas of the present. Readings from Greek, Roman and medieval cultures.

3302 Foundations of Western Culture II (3-3-0)

Prerequisite: Three hours of literature.

A philosophical study of major literary, historical, artistic and scientific events and personalities that have contributed to the ideas of the present. Readings from the Renaissance to the present.

3304 American Ethnic Heritage (3-3-0)

(Cross-listed as ENG 3324.)

Prerequisite: Three hours of literature.

An interdisciplinary study of ethnic contributions to the art, music, drama and literature of the United States. Credit may not be earned for both HUM 3304 and ENG 3324.

3310 Cultural Criticism (3-3-0)

(Cross-listed as ENG. 3340.)

Prerequisites: Three hours of literature and three hours of philosophy.

A survey of different ways of analyzing human culture. Students examine major schools of criticism and interpretation of society and its creative activity. This course is the gateway course for the Humanities program. May be repeated once for credit, with permission of the chair of the Arts and Humanities Department. Credit may not be earned for both HUM3310 and ENG 3340.

3312 Major Developments in the History of Art (3-3-0)

(Cross-listed as ART 3301)

Prerequisite: Three hours of art history or art appreciation.

A study of important historical events in the development of the theory and practice of the visual arts. Credit may not be earned for both HUM 3312 and ART 3301.

3313 Major Developments in the History of Music (3-3-0)

(Cross-listed as MUS 3301)

Prerequisite: Three hours of music appreciation.

A study of important historical events in the development of music theory and performance. Credit may not be earned for both HUM 3313 and MUS 3301.

3314 Studies in Autobiography (3-3-0)

(Cross-listed as ENG 3314)

Prerequisite: Three hours of literature.

A study of autobiographical writing; the course may analyze its forms or techniques, trace a topic or type of autobiographical literature or investigate critical problems posed by autobiography. Credit may not be earned for both HUM 3314 and ENG 3314.

3315 Theater: Greek to Elizabethan (3-3-0)

(Cross-listed as DRA 3303)

Prerequisite: ENG 1301.

World theater from its beginnings to the 18th century, including theater architecture, staging and cos-

tuming practices, plays and playwrights, and social and political forces affecting the theater. Credit may not be earned for both HUM 3315 and DRA 3303.

3316 Theater: Elizabethan to Modern (3-3-0)

(Cross-listed as DRA 3304)

Prerequisite: ENG 1301.

World theater from the 18th century to the present. Credit may not be earned for both HUM 3316 and DRA 3304.

3317 Jazz Styles (3-3-0)

(Cross-listed as MUS 3303)

Prerequisites: MUS 2301, MUS 2302 or approval of instructor.

Introduction to various styles of jazz from its beginnings at the end of the 19th century to the 1940s. Beginning with the early years of "traditional" jazz in New Orleans and progressing chronologically, students will be introduced to major figures and styles of jazz through videos, recordings, readings and concerts. Includes study of the outside forces that helped shape the music and the musicians. Credit may not be earned for both HUM 3317 and MUS 3303.

3318 Jazz Styles II (3-3-0)

(Cross-listed at MUS 3304)

Prerequisites: MUS 2301, MUS 2302 or approval of instructor.

Introduction to various styles of jazz from the 1940s to today. Beginning with the evolution of jazz into a chamber art form during the bebop movement of the 1940s and progressing chronologically, students will be introduced to major figures and styles of jazz through videos, recordings, readings and concerts. Includes study of the outside forces that helped shape the music and the musicians. Credit may not be earned for both HUM 3318 and MUS 3304.

3320 Foreign Language Literature in Translation (3-3-0)

Prerequisite: Three hours of literature.

A survey of selected classic and contemporary texts originally written in languages other than English. This course may be repeated once for credit, with the permission of the department chair.

3321 Hispanic Culture and Civilization (3-3-0)

Prerequisite: ENG 1302.

A survey of the cultural traditions of Spanish-speaking populations, including those of Spain, Latin America and the United States. No knowledge of Spanish is required or expected.

3323 Technology and Literature (3-3-0)

(Cross-listed as ENG 3323)

Prerequisite: Three hours of literature.

The course may study influences of technology or science on literature, analyze how literature represents technology, or interpret literature as a reflection of social ambivalence toward technology. Credit may not be earned for both HUM 3323 and ENG 3323.

3324 History of Modern Art (3-3-0)

(Cross-listed as ART 3302)

Prerequisite: ENG 1301 and ART 1301, 1302, or 1310.

A survey of world art from the Revolutionary Period (late 18th century) to contemporary times, including such artistic movements as Neoclassicism, Romanticism, Impressionism, Cubism, Surrealism and Pop Art. Credit may not be earned for both HUM 3324 and ART 3302.

3330 Second Language Acquisition (3-3-0)

Prerequisite: PSY 1303.

An investigation of current theories and research techniques in the study of second language acquisition and bilingualism with special emphasis on the implications for bilingual and foreign language education.

4313 Psychology through Literature (3-3-0)

(Cross-listed as ENG 4313)

Prerequisite: Three hours of literature.

The course adopts psychological theory as a methodology for studying literature and its cultural contexts. Credit may not be earned for both HUM 4313 and ENG 4313.

4350 Senior Seminar in the Humanities (3-3-0)

(Cross-listed as ENG 4330.)

Prerequisites: Senior standing and 18 upper-division hours in the humanities, including HUM 3310/ ENG 3340.

A review of key issues in interpretation and understanding from philosophy, literature, history and the arts. It aims to provide students with means for synthesizing their studies in the liberal arts. This course is the capstone for the Humanities program. Credit may not be earned for both HUM 4350 and ENG 4330.

4380 Field Experience (3-3-0)

Prerequisites: Sixty hours toward degree and approval of department chair.

Placement of students in jobs involving areas in the humanities within the private and public sectors. Work may be paid or unpaid. Written reports, conferences with the instructor and other academic work are required. May be repeated once for credit.

4390 Selected Topics in the Arts and/or Humanities (3-3-0)

Prerequisites: ENG 1302 and junior standing.

Selected topics in the arts and/or humanities. May be repeated once when topic varies.

4399 Directed Study in Humanities

Prerequisites: Junior standing; formal approval of department chair and dean; cumulative GPA of 3.0 and GPA of at least 3.3 in the specific area of directed study.

Selected topics in the humanities; intensive individual study under the guidance of a member of the faculty.

Management (MGT)

3301 Management of Organizations (3-3-0)

Prerequisite: Junior standing.

Introduction to the management of organizational behavior. Micro and macro organizational behavior topics are covered including motivation, personality, groups and intergroup dynamics, decision making, communication, politics and ethics, organizational design and change and international issues. The functions of management—planning, organizing, leading and controlling—are also examined.

3302 Human Resource Management (3-3-0)

Prerequisite: MGT 3301.

Policies, procedures and strategies of human resource management including recruitment, job analysis, employee appraisal, staffing, and compensation.

3303 Negotiating Skills and Techniques (3-3-0)

Prerequisites: PSY 1303 and junior standing.

Process of negotiation, human behavior involved in negotiations, techniques of communication, persuasion, strategy, tactics and formulation of game plans. Practical exercises in mock negotiations.

3304 Labor Management Relations (3-3-0)

Prerequisite: MGT 3302.

Current issues and problems facing management in its relationships with employees, government and the community. The management-union relationship, governmental actions affecting this relationship and trends in the composition of the work force.

3305 Planning and Budgeting (3-3-0)

(Formerly FIN 3303. Student cannot receive credit for both courses.)

Prerequisites: CIS 1301, ACC 2302 and junior standing.

The study of formal planning and control systems. Topics include planning procedures and tools, organization of the planning system, budgeting, management by objectives, computer based planning models and comparative planning approaches.

3306 Compensation Management (3-3-0)

Prerequisite: MGT 3302.

Installation and administration of a wage and salary program. Evaluation of personnel, government and union influence and the implementation and maintenance of various incentive plans and fringe benefit packages.

3307 Equal Opportunity Management (3-3-0)

(Cross-listed as ADM 3303)

Prerequisite: MGT 3301.

Focuses on managerial issues affected by the rights of the workforce. Issues include harassment and discrimination based on such factors as race, ethnicity, gender, physically challenged and sexual orientation. Credit may not be earned for both MGT 3307 and ADM 3303.

3308 Purchasing Management (3-3-0)

Prerequisites: Junior standing and MATH 1305 or instructor approval.

Management of the purchasing function. Emphasis on the overall goals of purchasing. These goals include: provide an uninterrupted flow of materials and services, keep inventory at minimum, maintain quality standards, develop competent suppliers, standardize the item bought, obtain the lowest ultimate price, improve the organization's competitive position and achieve good external and internal working relationships.

3309 Materials Management (3-3-0)

Prerequisite: MATH 1305 and junior standing.

The materials flow process within an organization. Topics include forecasting, logistics of supply, production, and distribution including materials planning,

inventory management, storage, traffic, scrap and surplus disposal, ethics, value analysis and governmental acquisition.

3332 Quantitative Decision Making (3-3-0)

Prerequisite: MGT 3301 and a grade of C or better in MATH 3309.

Decision-making models with applications to business situations involving manufacturing, production and delivery of services. Topics include decision theories, forecasting, total quality management, linear programming, inventory management, location and layout, transportation, queuing, simulation, NPV and break-even, project management/scheduling, and just-in-time concepts. Topics will be applied to actual business situations using computer software.

3399 Directed Study in Management

Prerequisite: Approval of department chair and dean. Selected topics in management; intensive individual study under the guidance of a member of the management faculty.

4301 International Management (3-3-0)

Prerequisites: Junior standing or permission of instructor.

International Management is concerned with the coordination of human, financial, and physical resources in multi-cultural organizations. The focus will be on the managerial implications of the following topics: Global economic developments and trends, international cultural environment, international negotiations, strategic planning, integrative strategies, competitiveness, organizing for international operations, human resource management, control, and ethics.

4303 Small Business Management (3-3-0)

Prerequisites: Junior standing.

An overview of the elements necessary for a small business to be developed, introduced into the marketplace, and successfully managed. Emphasis is placed on building a business plan.

4307 Supply Chain Logistics Management (3-3-0)

Prerequisites: MGT 3308, MKT 3301 or instructor's approval

The overall logistics process for time and place utility of products. Topics include customer accommodation distribution strategy; planning and scheduling; inventory, packaging and storage strategy and management; transportation infrastructure and regulation; transportation management; logistics network integration and system design processes; organization and relationship management; and performance and financial assessment.

4308 Applied Organizational Behavior (3-3-0)

Prerequisite: MGT 3301 or instructor approval.

This skill-building course relies on the general concepts imparted in MGT 3301. The focus is on leading and managing within organizations with special emphasis on self-awareness, stress management, supportive communication, conflict management, motivating others, the exercise of power, and team building. Diagnosis of current managerial skill level, readings, group exercises, and applications is included.

4311 Governmental Procurement (3-3-0)

Prerequisite: MGT 3308 or instructor approval.

The procurement process in governments and governmental agencies. Comparison of procurement practices in the public sector. Emphasis on political, legal, and fiscal aspects including financing and funding. Includes the contracting process, subcontracting, and administration of government contracts and grants including management of progress, quality, and contract changes.

4314 Quality Management (3-3-0)

Prerequisites: MGT 3301 and MGT 3332 or instructor approval.

A comprehensive study of management and technical issues in quality management. Topics include quality management philosophies, TQM, customer satisfaction, continuous improvement, organization and implementation of quality, quality assurance, and statistical process control.

4315 Supply Chain Management (3-3-0)

Prerequisite: MGT 3308 or equivalent, or instructor approval.

Covers the concept of supply chains beginning with raw materials, going through an organization's internal operations, and continuing to the ultimate end user of a product. Focuses on how to manage principal supply chains to improve the overall supply efficiency of an organization. Includes: how to identify supply chains, an overview of methods, processes, and systems used in the operation of supply chains, and where and how to apply or change supply chain operations to improve their performance.

4330 Project Management (3-3-0)

Prerequisite: MGT 3332 or MGT 4305.

Techniques for planning, scheduling and controlling are presented with the use of software tools. Emphasis is placed on problem solving skills and project team development. Students will utilize techniques presented in this course to successfully complete a real-world project related to management.

4350 Advanced Purchasing And Supply Management Seminar (3-3-0)

(Formerly MGT 4309. Students cannot receive credit for both courses.)

Prerequisite: 12 hours of purchasing courses or instructor approval.

The capstone course in purchasing and supply management. Emphasizes purchasing and supply management strategy and planning through the use of the latest research in purchasing and supply management. Covers body of knowledge essential to meet the requirements of the Certified Purchasing Managers (C.P.M.) examination.

4380 Field Experience

For more information and qualifications see Field Experience in the College of Business section of this catalog and/or the department chair for your declared major.

4390 Selected Topics in Management (3-3-0)

Prerequisite: Approval of instructor or department chair.

Intensive study of one or more major topics in management. May be repeated for credit with departmental approval when topics vary.

4391 Selected Topics in Purchasing

Prerequisite: Approval of instructor or department chair.
Intensive study of one or more major topics in purchasing and materials management, especially with respect to new or emerging areas. Course may be repeated for credit with departmental approval when topics vary.

Marketing (MKT)

3301 Principles of Marketing (3-3-0)

Prerequisites: Junior standing.
Factors involved in the management of the marketing function relative to product development, promotion, pricing, physical distribution and the determination of marketing objectives within the framework of the marketing system and available markets.

3302 Personal Selling (3-3-0)

Prerequisite: Junior standing or instructor approval.
A development of the selling skills knowledge and technique required for effective consumer and industry selling. Emphasis is placed on learning and using prospecting skills, assessing customer needs, building reports, establishing benefit connections, handling objections and closing techniques to build long-term relationships.

3303 Business Marketing (3-3-0)

Prerequisite: MKT 3301 or departmental approval.
Industrial or business marketing focuses on those activities that facilitate exchanges of products and services among businesses. Business markets differ from consumer markets in distinct ways that require different marketing practices. This course explores the application of marketing principles such as segmentation, positioning, promotion, distribution, pricing and product development to industrial and business markets.

3304 International Marketing (3-3-0)

Prerequisite: MKT 3301.
An examination of the problems, systems, procedures and general environment of international marketing, including differences in cultural and marketing practices among nations.

3305 Promotional Strategy (3-3-0)

Prerequisite: MKT 3301 or department approval.
An in-depth study of the interrelationships among the elements of the promotional mix: advertising, personal selling, sales promotion and publicity.

3310 Marketing Channels (3-3-0)

Prerequisite: MKT 3301
Design, implementation and management of marketing channels. Topics include market segmentation for channel design, channel structure and flows, channel integration, alliances, and legal constraints, performance measurement, channel institutions, and the role of logistics and supply chain management in marketing channels.

3399 Directed Study in Marketing

Prerequisite: Approval of department chair and dean.
Selected topics in marketing; intensive individual study under the guidance of a member of the marketing faculty.

4305 Consumer Behavior (3-3-0)

Prerequisite: MKT 3301.
Fundamental behavioral concepts applied to understanding consumer behavior. Topics include decision-making, learning, motivation, psychology, culture, and attitude formation as it applies to consumption behaviors.

4306 Marketing Research (3-3-0)

Prerequisites: MATH 3309 and MKT 3301 or departmental approval.
Marketing research supports marketing programs by providing information that describes and predicts market behavior. The marketing research process includes problem formulation, research design, data collection, data analysis and report writing. All aspects of marketing research are covered in this course with particular emphasis placed on research designs that will support decision-making.

4308 Exporting and Importing (3-3-0)

Prerequisite: MKT 3301 or departmental approval.
Accessing global markets is the focus of this course. Strategies and practices for entering and expanding foreign markets require consideration of cultural, political, business and legal customs. Learning the procedures and marketing practices needed to establish an export/import business is emphasized.

4309 Marketing Management and Strategy (3-3-0)

Prerequisites: Nine hours of Marketing or departmental approval.
Covers marketing, planning, strategy and management. A review of basic marketing principles and tools for analyzing marketing problems. The core of the course involves the analysis of cases to develop marketing strategies and plans.

4380 Field Experience

For more information and qualifications see Field Experience in the College of Business section of this catalog and/or the department chair for your declared major.

4390 Selected Topics in Marketing

Prerequisite: Approval of department chair.
Intensive study of one or more major topics in marketing, especially with respect to a new or emerging area.

Mathematics (MATH)

0300 Algebra Tutorial (3-0-0)

Prerequisite: Students are placed in MATH 0300 based on placement test results, taken at UH-Downtown.
This course is intended to build and reinforce the essential arithmetical and algebraic skills needed in order to be prepared for MATH 1300. A multimedia approach is used with attention to individual needs. This course may not be used to satisfy degree requirements.

1101 TASP Tutorial (1-3-0)

Tutorial instruction designed to prepare students to pass the MATH component of the state-mandated Texas Academic Skills Program examination.

1300 Algebra (3-0-0)

Prerequisite: A grade of "C" or better in MATH 0300, placement by exam taken at UH-Downtown or a pass-

ing score on the mathematics portion of TASP.

A survey of pre-college algebra. Topics include operations with algebraic expressions, factoring, the Cartesian coordinate system, systems of first-degree equations in two variables solved by graphical and algebraic means, slope and distance formulas, exponents and radicals, an introduction to quadratic equations and stated problems. This course may not be used to satisfy degree requirements. (MATH 1312)

1301 College Algebra (3-3-0)

Prerequisite: A grade of "C" or better in MATH 1300 or placement by exam taken at UH-Downtown.

College-level topics in algebra including variation, systems of linear and nonlinear inequalities, functions and graphs, quadratic equations and functions, exponential and logarithmic functions and applications related to these topics. (MATH 1314)

1302 Plane Trigonometry (3-3-0)

Prerequisite: A grade of "C" or better in MATH 1301 or placement by exam taken at UH-Downtown.

Trigonometric functions with emphasis on identities, equations, radian measure, graphing, inverse trigonometric functions, an introduction to polar coordinates and applications related to these topics. (MATH 1316)

1305 Finite Mathematics with Applications (3-3-0)

Prerequisite: A grade of "C" or better in MATH 1301 or placement by exam taken at UH-Downtown.

Graphs and functions, vectors, matrices, linear programming using the Simplex method, mathematics of finance, and an introduction to probability with applications to business, economics and the social sciences. (MATH 1324)

1306 Fundamentals of Calculus with Applications (3-3-0)

Prerequisite: A grade of "C" or better in MATH 1301 or placement by exam taken at UH-Downtown.

Functions, limits, continuity, differentiation, integration and partial derivatives. Applications of all techniques to business, economics and the social sciences are stressed. (MATH 1325)

1310 College Mathematics for Liberal Arts (3-3-0)

Prerequisite: A grade of "C" or better in MATH 1300 or placement by exam taken at UH-Downtown.

An introduction to contemporary mathematical problem-solving techniques. This course cannot be applied toward any degree in the department of Computer and Mathematical Sciences; it is not the prerequisite for any CMS course. Designed for students requiring one college level mathematics course. (MATH 1332)

1404 Precalculus Mathematics (4-4-0)

Prerequisite: A grade of "C" or better in MATH 1302 or placement by exam taken at UH-Downtown.

Topics from plane analytic geometry needed in calculus are stressed as well as a thorough treatment of the elementary functions and their graphs; also included are the Binomial Theorem, sequences, series, mathematical induction and an introduction to limits. (MATH 2412)

1505 Introduction to Analysis (5-5-0)

Prerequisite: Department approval and a grade of "B" or better in MATH 1301.

Topics from trigonometry which are covered include identities, equations, radian measure, graphing, inverse trigonometric functions, polar coordinates, and applications related to these topics. Also covered are topics from analytical geometry needed in calculus, elementary functions and their graphs, the Binomial Theorem, sequences, series, mathematical induction and an introduction to limits.

2300 Introduction to Statistics (3-3-0)

Prerequisite: A grade of "C" or better in MATH 1301 or placement by exam taken at UH-Downtown.

Techniques for the collection, analysis and interpretation of numerical data. Probability, confidence intervals, hypothesis testing, estimation and special distributions. Special emphasis is placed on a variety of applications. Computer packages are used. This course may not be applied toward a major in the Computer and Mathematical Sciences department. (MATH 1342)

2305 Discrete Mathematics (3-3-0)

Prerequisites: A grade of "C" or better in MATH 1404 or MATH 1305 or MATH 1505 and credit or enrollment in CS 1408 or CS 1410.

Topics include sets, relations, and functions, logic, methods of proofs, induction and recursion, counting principles, combinatorics and graphs with emphasis on application. (MATH 2305)

2307 Linear Algebra (3-3-0)

Prerequisites: A grade of "C" or better in MATH 2401 or MATH 2305.

An introduction to some of the basic concepts of linear algebra including vector spaces, linear transformations, matrices, systems of linear equations, determinants, eigenvalues, eigenvectors and applications. (MATH 2318)

2401 Calculus I (4-4-0)

Prerequisite: A grade of "C" or better in MATH 1404 or 1505 or placement by exam, taken at UH-Downtown.

Functions, limits, the derivatives of algebraic and trigonometric functions, the derivatives of parametric equations, curve sketching, applications of the derivative and an introduction to the definite and indefinite integrals of algebraic and trigonometric functions. (MATH 2413)

2402 Calculus II (4-4-0)

Prerequisite: A grade of "C" or better in MATH 2401.

Topics include differentiation and integration of transcendental functions, techniques of integration, improper integrals and applications of the integral, sequences and infinite series. (MATH 2414)

2403 Calculus III (4-4-0)

Prerequisite: A grade of "C" or better in MATH 2402.

Solid analytic geometry, partial derivatives, multiple integrals and line integrals. Applications of the calculus of functions of several variables are also considered. (MATH 2415)

3301 Differential Equations (3-3-0)

Prerequisites: A grade of "C" or better in MATH 2401 and MATH 2402. Credit or enrollment in MATH 2307 is recommended.

Ordinary differential equations, with emphasis on methods of solution of first order equations, homogeneous and non-homogeneous linear equations and systems of linear equations. Power series solutions of some linear equations and elementary applications are also covered.

3302 Probability and Statistics(3-3-0)

Prerequisite: A grade of "C" or better in MATH 2401. Probability and statistics useful for science and engineering applications. Topics include: probability distributions, statistical inference, estimation, testing of hypotheses, linear regression and analysis of variance. Standard statistical packages are used. Credit cannot be given for both MATH 3302 and MATH 3309.

3303 Geometry (3-3-0)

Prerequisite: "C" or better in MATH 1301 and junior standing. Topics selected from: properties of angles, lines, triangles, polygons, polyhedra, circles, similarity and congruency of triangles, area perimeter, surface area, volume geometric constructions, transformations, tessellation, investigating patterns in geometry for problem solving, the Pythagorean Theorem, the coordinate plane and an introduction to geometric proofs. This course is primarily designed for Education majors.

3306 Introduction to Modern Algebra (3-3-0)

Prerequisites: A grade of "C" or better in MATH 2305 and MATH 2307. Topics include rings and boolean algebra, semi-groups and groups, lattices, field theory, graph theory and their applications. Applications will include: coding, networks, minimal span trees and linear machines.

3307 Introduction to Real Analysis (3-3-0)

Prerequisites: A grade of "C" or better in MATH 2307 and MATH 2403. A rigorous treatment of the elements of intermediate real analysis including limits, sequences and series of real numbers, properties of the real number system, continuity and differentiability of functions and basic theorems of calculus.

3308 Numerical Methods (3-3-0)

(Cross-listed as CS 3308)
Prerequisites: "C" or better in: CS 1408 or CS 1410, MATH 2307 and credit or enrollment in MATH 3301. Develop and implement algorithms used in solving a variety of problems from science and engineering, including numerical solutions of linear systems of equations and nonlinear equations, curve fitting, approximation, numerical differentiation and integration, and numerical solutions of ordinary differential equations. Computer techniques are used in obtaining and analyzing numerical solutions. Credit may not be earned for both MATH 3308 and CS 3308.

3309 Statistical Analysis for Business Applications I (3-3-0)

Prerequisites: MATH 1305 and MATH 1306. Basic concepts of statistics for business students are considered including descriptive statistics, probability concepts, Bayes theorem, random variables, probability distributions, expected values, point and interval esti-

mations techniques and some hypothesis testing. Applications to a variety of business problems are stressed and computer statistical packages are used. Credit cannot be given for both MATH 3302 and MATH 3309.

3310 Statistical Analysis for Business Applications II (3-3-0)

Prerequisite: MATH 3309 or department approval. Test of hypotheses, regression and correlation, introduction to analysis of variance, index numbers and introduction of time series and other special topics. Applications to a variety of business problems and use of computer statistical programs.

3315 Introduction to Mathematical Modeling (3-3-0)

Prerequisite: A grade of "C" or better in Math 3301 (*Differential Equations*) and Math 2403 (*Calculus III*). The goal of this course is to impact to students the excitement and usefulness of mathematics as a fundamental tool in solving real-world problems. The course emphasizes manners in which mathematical models are constructed for physical problems and illustrates from many fields of endeavor, such as the physical sciences, biology, and traffic dynamics.

3316 Theory of Computation (3-3-0)

(Cross-listed as CS 3306)
Prerequisites: "C" or better in: CS 2310, MATH 2305 and MATH 2307. An introduction to the modern theory of computing. Topics selected from the abstract algebra, finite automata, regular expressions, regular languages, push-down automata, context-free languages, and Turing machines. The capabilities and limitations of abstract computing devices are investigated from a theoretical perspective. Credit may not be earned for both MATH 3316 and CS 3306.

3321 Math Concepts I (3-3-0)

Prerequisites: Math 1301 or Math 1310 with grade of "C" or better. Restricted to students in Urban Education or permission of CMS department chair. Topics are chosen from: logic, set theory, mathematical systems, consumer math, geometry, and statistics.

3322 Math Concepts II (3-3-0)

Prerequisites: Math 1301 or Math 1310 with grade of "C" or better. Restricted to students in Urban Education or permission of CMS department chair. Topics are chosen from: number theory, measurement, estimation, problem-solving, history of mathematics with emphasis on the development of numbers, computation, and algebra. Material on twentieth century mathematics and the use of technology is also included.

3330 Introduction to Geometric Modeling (3-3-0)

(Cross-listed as CS 3330)
Prerequisites: A grade of "C" or better in Math 2403, Math 2307, and CS 2310. Mathematical methods for the definition and manipulation of geometric shapes. Topics include Bezier curves and surfaces, B-spline curves and surfaces, Coons surfaces, Gordon surfaces, Gregory surfaces, tensor product forms, and subdivision methods. Applications of geometric modeling to computer animation, aircraft design, automobile

design, and other areas will be discussed. Credit may not be earned for both MATH 3330 and CS 3330.

3399 Directed Study in Mathematics

Prerequisite: Formal approval by department chair and dean.

Selected topics in mathematics; intensive individual study under the guidance of a member of the Computer and Mathematical Sciences faculty.

4294 Senior Seminar

(Cross-listed as CS 4294)

Prerequisites: Advanced standing, ENG 3302, SPCH 1304, departmental approval and passing score on the writing proficiency exam.

An intense, structured seminar. Students are exposed to the world community as it relates to their major (involving a written and oral report on cultural issues as well as discussion of these topics); ethics is discussed as it relates to the subject. In addition, students prepare a written proposal for a senior project. Attendance at departmental colloquia is also required. Credit may not be earned for both MATH 4294 and CS 4294.)

4300 Statistical Quality Control (3-3-0)

Prerequisite: A grade of "C" or better in MATH 3302 or MATH 3309.

Topics include \bar{x} and R charts, c charts, u charts, median charts, Pareto analysis, cause and effect analysis, process capability indexes and other statistical techniques.

4301 Advanced Numerical Methods for Science and Engineering (3-3-0)

(Cross-listed as CS 4301)

Prerequisites: MATH 3308, MATH 2403 and MATH 3301.

Advanced topics in numerical mathematics, including the numerical solution of ordinary and partial differential equations and advanced methods in numerical linear algebra. Programming projects are stressed that use the computer to solve physical and engineering problems. Credit may not be earned for both MATH 4301 and CS 4301. This course may be used as a W-course with additional prerequisites of CS 4294, ENG 3302 and SPCH 1304.)

4302 Advanced Multivariable Calculus (3-3-0)

Prerequisites: MATH 2307 and MATH 2403.

Differentiability of real and vector valued functions; coordinate transformation in multiple integrals (Jacobian); line and surface integrals of real and vector-valued functions; Implicit Function Theorem; Green's, Stoke's and Divergence Theorems.

4303 Decision Mathematics (3-3-0)

Prerequisite: A grade of "C" or better in MATH 3302 or MATH 3310

Applications of the most useful tools of decision mathematics. Topics are selected from probabilistic models, decision models, game theory, queuing theory, PERT-CPM, inventory methods, Bayesian inference and other relevant topics.

4304 Methods of Applied Mathematics (3-3-0)

Prerequisites: A grade of "C" or better in MATH 2403 and MATH 3301.

Major topics include: Fourier series, Laplace transforms and partial differential equations, with emphasis on physical problems.

4305 Complex Variables with Applications (3-3-0)

Prerequisites: A grade of "C" or better in MATH 2403 and MATH 3301.

Analytic functions, power series, the theory of residues, conformal mapping and applications to physical problems.

4306 Mathematics Models and Computer Simulation (3-3-0)
(Cross-listed as CS 4306)

Prerequisites: MATH 3302 or MATH 3310; and CS 1408 or CS 1410.

Quantitative modeling of industrial systems, computer simulation languages; discussion of problems encountered in constructing simulation programs. Credit may not be earned for both MATH 4306 and CS 4306. This course may be used as a W-course with additional prerequisites CS 4294, ENG 3302 and SPCH 1304.

4307 Time Series (3-3-0)

Prerequisite: A grade of "C" or better in MATH 3302 or MATH 3309.

Topics include a study of auto-correlation and partial auto-correlation functions, multiplicative decomposition of a time series, construction and evolution of auto-regressive models, exponential smoothing procedures, classical regression analysis and Box-Jenkins methodology. Interpretation and computer analysis, using SAS or another appropriate package are emphasized.

4309 Design and Analysis of Experiments (3-3-0)

Prerequisite: A grade of "C" or better in MATH 3302 or MATH 3310.

Principles of design and analysis of experiments including randomized blocks, Latin, Graeco-Latin and Youden squares, multiple comparisons and orthogonal contrasts. Introduction to factorial designs and split plots and use of computer statistical programs.

4310 Applied Regression (3-3-0)

Prerequisite: A grade of "C" or better in MATH 3302 or MATH 3310.

Basic theory and structure of regression, with applications in business, economics, science and behavioral science. Topics are selected from: simple linear regression, correlation, multiple linear and polynomial regression, R^2 and adjusted R^2 , significance tests multicollinearity, comparison with ANOVA, dummy variables and coding, stepwise regression, prediction and inference in regression, analysis of covariance, interactions, time series, index numbers and forecasting. Emphasis on use of computer packages and interpretation of printouts.

4311 Operations Research (3-3-0)

Prerequisites: A "C" or better in: MATH 1305 and MATH 3309; or MATH 2307.

Applications of the most useful tools of operations research. Topics are selected from linear programming, the simplex method, the dual, the transportation model, networks, integer and dynamic programming and other topics.

- 4312 History of Applied Mathematics (3-3-0)**
(Cross-listed as CS 4312)
Prerequisites: MATH 2401 or MATH 1306 and department approval
 The course traces the development of mathematics and its applications from the Greek mathematicians through the modern age including the development of computer techniques in applied mathematics. Credit may not be earned for both MATH 4312 and CS 4312. This course may be used as a W-course with additional prerequisites CS 4294, ENG 3302 and SPCH 1304.
- 4328 Parallel Computing (3-3-0)**
(Cross-listed as CS 4328)
Prerequisites: "C" or better in CS 2310 and CS/MATH 3308
 Introduces fundamental concepts of parallel computers and parallel/distributed computation. A semester project involving parallel algorithm design, software implementation and results analysis to solve scientific and/or engineering application problems in parallel will be assigned. Credit may not be earned for both MATH 4328 and CS 4328. This course may be used as a W-course with additional prerequisites of CS 4294, ENG 3302 and SPCH 1304.
- 4333 Theory and Application of Neural Nets (3-3-0)**
(Cross-listed as CS 4333)
Prerequisites: A grade of "C" or better in MATH 2307, MATH 2403, and CS 2310.
 Introduction to basic concepts of neural networks used in supervised and unsupervised learning. Several learning rules and algorithms will be presented along with applications. Credit may not be earned for both MATH 4333 and CS 4333.
- 4334 Fuzzy Logic: Theory and Applications**
(Cross-listed as CS 4334)
Prerequisite: A grade of "C" or better in CS 2310 and Math 2307.
 This course will cover important ideas in the theory and applications of Fuzzy Logic as operations on fuzzy sets, alpha cuts, possibility measure, ruled based computations, associative memories and other topics as time permits. Credit may not be earned for both MATH 4334 and CS 4334.
- 4380 Field Experience**
Prerequisites: At least 60 semester hours and department approval and "B" or better in 6 hours of upper level math.
 Selected students are placed in jobs in the local community which are related to and reinforce their academic training. Positions are full-time, salaried and last the duration of a semester. Recommended for students not already employed in their area of study.
- 4390 Selected Topics in Mathematics (3-3-0)**
Prerequisite: Department approval.
 Intensive study of one or more major topics in mathematics. Course may be repeated for credit with department approval.
- 4395 Senior Project in Mathematics**
(Cross-listed as CS 4395)
Prerequisites: "B" or better in MATH 4294; ENG 3302, SPCH 1304, senior standing and department approval. Requires GPA of 3.0 or better.
 Intensive study under the guidance of a member of the Computer and Mathematical Sciences faculty which culminates in an individually researched and formally written report and oral presentation dealing with the applications of the mathematical sciences in the student's area of specialization and related to one type of business or industry in the Houston area. Credit may not be earned for both MATH 4395 and CS 4395.
- 4396 Senior Thesis**
Prerequisite: Formal approval of department chair and the student's advisor for MATH 4395.
 Intensive study under the guidance of a member of the Computer and Mathematical Sciences faculty which continues and expands the research carried out in MATH 4395. A formal written report and oral presentation will be required.
- 4399 Directed Study in Mathematics**
Prerequisite: Formal approval by department chair and dean.
 Selected topics in mathematics; intensive individual study under the guidance of a member of the Computer and Mathematical Sciences faculty.
- 5309 Business Statistics (3-3-0)**
Prerequisites: Graduate standing or mathematics department approval
 Basic concepts of statistics for Master's candidates are explored, including descriptive statistics, probability concepts, point and interval estimation, hypothesis, regression, and analysis of variance. Applications will be geared to business problems, and interpretation of results will be stressed. Computer packages will be utilized, with an emphasis on output analysis.
- 6301 Geometry for Elementary Teachers (3-3-0)**
Prerequisite: Department approval.
 Topics will be chosen from Euclidean geometry: properties of lines, planes, polygons and circles and other curves; concepts of congruence, symmetry, simple transformations and tessellations; techniques of measurement. Emphasis on application, the use of manipulatives, graphing calculators and appropriate computer software.
- 6302 Mathematical Structures for Elementary Teachers (3-3-0)**
Prerequisite: Department approval.
 Topics will be chosen from: introduction to set theory, functions and logic; elements of number theory; properties of the rational and real number systems; modular arithmetic; techniques of problem-solving. Emphasis on applications, the use of manipulatives, calculators and appropriate computer software.
- 6304 Combinatorics and Probability for Elementary Teachers (3-3-0)**
Prerequisite: Department approval.
 Topics will be chosen from: principles of counting, elements of probability, simulation and modelling techniques, introduction to graph theory, descriptive statistics including a variety of graphing procedures. Emphasis on manipulatives, calculators and appropriate computer software.

- 6311 Geometry for Secondary Teachers (3-3-0)**
Prerequisite: Department approval.
 Topics will be chosen from: Euclidean geometry, analytic geometry, non-Euclidean geometries. Proofs and the axiomatic approach will be included. Emphasis on appropriate geometric computer software.
- 6312 Analysis for Secondary Teachers (3-3-0)**
Prerequisite: Department approval.
 Topics will be chosen from: theory of functions including continuity, differentiation and integration; introduction to numerical analysis; elements of chaos and fractals. Emphasis on symbolic manipulation software.
- 6318 Special Topics for Secondary Teachers (3-3-0)**
Prerequisite: Department approval.
 Topics will be chosen from: probability distributions and inferential statistics; elementary game theory and combinatorics; linear programming and matrix methods; history of mathematics; modelling and simulation; uses of technology in mathematics; web use for searches of mathematical concepts and procedures. Emphasis on appropriate computer software.

Microbiology (MBIO)

- 1105 Microbiology Lab (1-0-3)**
Prerequisite: Credit or enrollment in MBIO 1305.
Laboratory fee required. \$12.
 Exercises and experiments which emphasize sterile techniques and other techniques used in the study of microorganisms in the clinical laboratory. (BIOL 2120)
- 1305 Microbiology (3-3-0)**
Prerequisite: Credit or enrollment in MBIO 1105; CHEM 1305 and CHEM 1105 recommended.
 Morphology, classification and physiology of microorganisms, with special emphasis on bacteria. The principles and procedures of disinfection and sterilization are also considered. (BIOL 2320)
- 2105 General Microbiology Lab (1-0-3)**
Prerequisite: Credit or enrollment in MBIO 2305.
Laboratory fee required. \$12.
 Experiments which emphasize sterile technique, staining techniques and biochemical tests used to identify microorganisms. (BIOL 2121)
- 2305 General Microbiology (3-3-0)**
Prerequisites: BIOL 1302/1102 and CHEM 1308/1108 and credit or enrollment in MBIO 2105.
 An introduction to microorganisms (bacteria, viruses, yeasts, algae and protozoa) with attention to morphology, physiology, genetics, taxonomy, and relationship of microorganisms to soil, water, food, industry and health. Credit for both BIOL 1305 and 2305 may not be applied toward a degree. (BIOL 2321)
- 3320 Virology (3-3-0)**
Prerequisite: MBIO 2305/2105.
 The various groups of viruses are studied with regard to their structure, characteristics, mechanisms of replication, applications to molecular biology and to disease processes.
- 3330 Undergraduate Research (3-0-9)**
Prerequisites: Approval by science advisor, a minimum GPA of 2.5, and permission of instructor.
 Independent investigation of a specific problem or topic in microbiology research under the direction of a selected faculty member.
- 3340 Environmental Microbiology (3-3-0)**
Prerequisites: CHEM 3301/3201 and MBIO 2305/2105
 The course will emphasize the impact of microorganisms on their environment. Topics include microbial diversity, microbiological interactions important in agriculture, medicine and biotechnology, biodegradation and bioremediation, and the impact of microbes in protective biofilms. Current methods for the detection of microorganisms and contamination control will also be discussed.
- 3399 Directed Study in Microbiology**
Prerequisite: Approval of the department chair and the dean; junior standing, minimum GPA of 3.0.
 Intensive in-depth study of various topics under the guidance of a member of the biology faculty.
- 4110 Microbiology Seminar (1-1-0)**
Prerequisites: Senior standing or permission of the instructor, MBIO 2305/2105 and eight hours of upper-level science.
 Readings and student presentations of relevant articles from current scientific journals or the results of the research.
- 4111 Methods in Recombinant DNA Technology (1-0-3)**
Prerequisites: MBIO 2305/2105, BIOL 3303/3103, credit or enrollment in MBIO 4310 and eight additional hours of upper-level science.
Laboratory fee required. \$12.
 Techniques in recombinant DNA technology including growth and assays of bacteria and bacteriophage; restriction enzyme digestions of plasmids, bacteriophage and recombinant DNA; and gel electrophoresis analysis of restricted DNA.
- 4120 Immunology Lab (1-0-3)**
Prerequisite: Credit or enrollment in MBIO 4320.
Laboratory fee required. \$12.
 Introduction to immunology laboratory techniques including agglutination, precipitation, neutralization and labeled immunoassays.
- 4140 Pathogenic Microbiology Lab (1-0-3)**
Prerequisite: Credit or enrollment in MBIO 4340.
Laboratory fee required. \$12.
 Techniques commonly used to identify clinically important pathogens.
- 4310 Industrial Microbiology (3-3-0)**
Prerequisites: MBIO 2305/2105, BIOL 3303/3103 and eight additional hours of upper-level science.
 Fundamental principles of biotechnology with emphasis on microbial systems and practical applications of genetic engineering and clinical systems.
- 4320 Immunology (3-3-0)**
Prerequisites: MBIO 2305/2105 and CHEM 3301/3201.

Innate immune response including latest advances, and detailed study of the adaptive immune response including B and T cell biology, macrophages, complement, hypersensitivities, transplantation and tumor biology.

4340 Pathogenic Microbiology (3-3-0)

Prerequisites: MBIO 2305/2105, CHEM 3301/3201 and credit or enrollment in MBIO 4140.

Microbial pathogens, clinical characterization, disease symptoms and chemotherapy.

4380 Field Experience

Prerequisites: At least 85 hours and departmental approval.

Field experience integrates theory learned in microbiology courses with practical laboratory or field experiences. May be repeated for additional credit; six hours may be applied toward degree in applied microbiology.

4399 Senior Honors Thesis

Prerequisite: Senior standing and enrollment in the Honors Program in the Natural Sciences.

A research project, supervised by a member of the natural sciences faculty or scientist at an affiliated research institution or laboratory. The completed research project must be presented in both written and oral form to the science faculty. No more than six hours credit for this course may be applied toward a degree.

Military Science (MSCI)

1125 Physical Readiness Training (1-0-3)

Offered in fall semesters. Utilizes Army fitness techniques; develops strength, flexibility and endurance; develops self-confidence through leadership training and physical activities.

1126 Physical Readiness Training (1-0-3)

Offered in spring semesters. Utilizes Army fitness techniques; develops strength, flexibility and endurance; develops self-confidence through leadership training and physical activities.

1210 Introduction to ROTC (2-1-2)

Learn Fundamental concepts of leadership in both classroom and outdoor laboratory environments. Increase self-confidence through team study and activities in basic drill, physical fitness, rappelling, first aid and basic marksmanship. Develop communication skills to improve individual performance and group interaction. One-hour classroom session and a required lab. No military commitment is required for attending this course.

1220 Introduction to Leadership (2-1-2)

Learn and apply principles of effective leadership. Reinforce self-confidence through participation in physically and mentally challenging training with upper division ROTC students. Develop communication skills to improve individual performance and group interaction. Relate ethical values to the effectiveness of a leader. Includes training on survival skills and self-defense. One hour classroom session and a required lab. No military commitment is required for attending this course.

2210 Military Leadership Development (2-2-2)

Offered in fall semesters Characteristics of leadership, problem analysis, decision making, oral presentations, first aid, small unit tactics, land navigation, basic radio communication, marksmanship, fitness training, rappelling. Fitness training required two times per week in addition to class and lab.

2220 Military Leadership Development (2-2-2)

Offered in spring semesters Characteristics of leadership, problem analysis, decision making, oral presentations, first aid, small unit tactics, land navigation, basic radio communication, marksmanship, fitness training, rappelling. Fitness training required two times per week in addition to class and lab.

2410 Basic Camp

Prerequisite: Approval of the chair of Military Science at UH.

Six-week off-campus field training practicum. Includes students to the Army and leadership. Student will not receive credit for both basic course work and Basic Camp. No military obligation is associated with this course.

3310 Advanced Military Science (3-2-3)

Prerequisite: MSCI 2220 or consent of the chair of Military Science at UH.

Offered in fall semesters. Leadership, preparing combat orders, military instruction principles, small unit tactics, tactical communications, fitness training. Class is designed to prepare students for Advanced Camp. Fitness training required three times per week in addition to class and lab.

3320 Advanced Military Science (3-2-3)

Prerequisite: MSCI 2220 or consent of the chair of Military Science at UH.

Offered in spring semesters. Leadership, preparing combat orders, military instruction principles, small unit tactics, tactical communications, fitness training. Class is designed to prepare students for Advanced Camp. Fitness training required three times per week in addition to class and lab.

3490 Summer Field Training

Prerequisite: MSCI 3320 or consent of the chair of Military Science at UH.

Off-campus field training practicum stressing application leadership management with emphasis on tactical and special military skills. Places students in demanding and stressful leadership situations.

4310 Advanced Military Science (3-2-3)

Prerequisite: MSCI 3320 or consent of the chair of Military Science at UH.

Offered in fall semesters. Leadership and command, military law, administration/staff operations and procedures, dynamics of the military team, training management, ethics and professionalism. Fitness training required three times per week in addition to class and lab.

4320 Advanced Military Science (3-2-3)

Prerequisite: MSCI 3320 or consent of the chair of Military Science at UH.

Offered in spring semesters. Leadership and command,

military law, administration/staff operations and procedures, dynamics of the military team, training management, ethics and professionalism. Fitness training required three times per week in addition to class and lab.

Music (MUS)

- 1303 Reading Music (3-3-0)**
Practice in reading and writing of music notation and rhythms commonly found in choral and instrumental literature. Keyboard used to visualize musical symbols, and plastic recorders used for practical realization.
- 1304 Music Theory I (3-3-0)**
Prerequisite: MUS 1303 or permission of instructor.
Study and practice of tertian construction, writing four-part harmony, harmonic analysis using figured bass, and ear training; emphasis on developing ability to write and analyze tonal music. (MUSI 1311)
- 2301 Music Appreciation: Before 1750 (3-3-0)**
Prerequisite: READ 1300 or acceptable reading placement score.
A general survey of Western music from the Middle Ages to 1750 with a study of representative composers and compositions through recordings, lectures and live performances. (MUSI 1308)
- 2302 Music Appreciation: After 1750 (3-3-0)**
Prerequisite: READ 1300 or acceptable reading placement score.
A general survey of Western music from 1750 to present with a study of representative composers and compositions through recordings, lectures and live performances. (MUSI 1309)
- 3301 Major Developments in the History of Music (3-3-0)**
(Cross-listed as HUM 3313)
Prerequisite: 3 hours of music appreciation.
A survey of important historical events in the development of music theory and performance. Credit may not be earned for both MUS 3301 and HUM 3313.
- 3302 Introduction to African American Music (3-3-0)**
Prerequisite: MUS 2301 or 2302
This course will introduce students to various styles of the African American musical tradition. Starting with basic characteristics of music in West Africa and working chronologically, the course will cover performing arts, religion, and other sociopolitical elements that have influenced some of the vibrant music in American culture.
- 3303 Jazz Styles I (3-3-0)**
(cross-listed as HUM 3317)
Prerequisites: MUS 2301 or 2302 or approval of instructor.
Introduction to various styles of jazz from its beginnings at the end of the 19th century to the 1940s. Beginning with the early years of "traditional" jazz in New Orleans and progressing chronologically, students will be introduced to major figures and styles of jazz through videos, recordings, readings and concerts. Includes study of the outside forces that helped shape

the music and the musicians. Credit may not be earned for both MUS 3303 and HUM 3317.

- 3304 Jazz Styles II (3-3-0)**
(cross-listed at HUM 3318)
Prerequisites: MUS 2301, MUS 2302 or approval of instructor.
Introduction to various styles of jazz from the 1940s to today. Beginning with the evolution of jazz into a chamber art form during the bebop movement of the 1940s and progressing chronologically, students will be introduced to major figures and styles of jazz through videos, recordings, readings and concerts. Includes study of the outside forces that helped shape the music and the musicians. Credit may not be earned for both MUS 3304 and HUM 3318.
- 3399 Directed Study in Music**
Prerequisites: Junior standing; formal approval by department chair and dean; cumulative GPA of 3.0 and GPA of at least 3.3 in the specific area of directed study.
Selected topics in the field; intensive individual study under the guidance of a member of the faculty.

Natural Sciences (NS)

- 3310 Physical Science Studies (3-1-4)**
Prerequisite: Admission to Teacher Education Program.
Laboratory fee required: \$12.
An integrated lecture/laboratory course emphasizing major topics in chemistry, materials science and physics and their applications in society and to science education.
- 3311 Earth and Environmental Science Studies (3-1-4)**
Prerequisite: Admission to Teacher Education Program.
Laboratory fee required: \$12.
An integrated lecture/laboratory course emphasizing major topics in earth science and environmental science and their applications in society and to science education.
- 3312 Life Science Studies (3-1-4)**
Prerequisite: Admission to Teacher Education Program.
Laboratory fee required: \$12.
An integrated lecture/laboratory course emphasizing principal areas of the life sciences and their applications in society and to science education.
- 6301 Selected Topics in Earth and Environmental Science (3-3-0)**
Prerequisites: Graduate Standing
Possible topics include alternate energy resources, urbanization vs. environmental quality, geological evolution, and special investigations in an area of earth or environmental science.
- 6311 Selected Topics in Life Science (3-3-0)**
Prerequisites: Graduate Standing
Possible topics include economic botany, bioengineering, genetic-related health problems, plant physiology, nutrition and health, and special investigations in an area of life science.
- 6321 Selected Topics in Physical Science (3-3-0)**
Prerequisites: Graduate Standing

Possible topics include physical measurements in the environment, applications of classical and modern physics, properties and uses of modern materials, production and properties of common industrial chemicals, and special investigations in an area of physical science.

6331 Selected Topics in Advanced Geology and Physics (3-3-0)

Prerequisites: Graduate Standing

Plate tectonics, exploration and production of energy resources, classical and modern physics, environmental modeling, physics of the atmosphere, and advanced investigative methods in geology and physics.

Philosophy (PHIL)

1301 Introduction to Philosophy (3-3-0)

Prerequisite: ENG 1301 or concurrent enrollment in ENG 1301.

Teaches student how to think philosophically about basic issues about human nature and the limits of human knowledge, freedom and determinism, morality and responsibility, the role of science, technology, work and religion in their lives. (PHIL 1301)

1302 Critical Thinking (3-3-0)

A practical introduction to thinking effectively that develops skills in recognizing premises and conclusions to arguments. The course provides practice in evaluating arguments, clarifying meanings, recognizing the various ways language functions, and defining terms. The course teaches both deductive and inductive uses of logic using examples from various disciplines including the sciences, literature, politics and advertising. The class teaches precision in language and interpretation.

2301 Classical Philosophy (3-3-0)

Prerequisite: ENG 1301 or concurrent enrollment in ENG 1301.

Traces the development of Western philosophy from its Greek sources through Roman and medieval philosophy to the birth of the modern world. (PHIL 2316)

2302 Modern Philosophy (3-3-0)

Prerequisite: ENG 1301 or concurrent enrollment in ENG 1301.

An historical survey of the development of philosophic thought from Descartes through Kant with emphasis on the rationalists and empiricists. (PHIL 2317)

3301 Moral Issues, Personal and Professional (3-3-0)

Prerequisite: Three hours of philosophy or junior standing.

Ethical theories, both traditional and modern, as applied to contemporary personal and professional problems; emphasis on legal, medical, political and business ethics and the so-called new morality.

3302 Philosophy of Science (3-3-0)

Prerequisite: ENG 1302

An examination of the organization of the sciences, the

logic of their theories and methods, with some attention to the sciences' implications for cultural and moral values.

3304 Logic (3-3-0)

Prerequisite: Successful completion of ENG 1302.

An advanced skills class which develops the mind's flexibility and endurance. The course practices identifying informal fallacies and evaluating written arguments. The primary emphasis is on formal logic, including propositions, syllogisms, and probable inference. (PHIL 2303)

3305 Contemporary Philosophy (3-3-0)

Prerequisite: Three hours of philosophy.

A survey of recent philosophic schools and movements from Nietzsche to the deconstructionists. Emphasis on phenomenological and existential philosophies.

3319 Philosophy of Gender (3-3-0)

Prerequisite: ENG 1302.

This course examines the ideas behind the cross cultural and historical construction of gender. The discourse invites men and women to involve themselves philosophically in issues of gender with an eye to both personal and societal concerns. The readings emphasize the developments of feminist philosophy in politics, literature and art. Students will arrive at their own evaluation of the significance of gender differences. (W) Writing Class.

3320 Environmental Ethics (3-3-0)

Prerequisite: junior standing.

Local and world-wide environmental problems make understanding how to relate to the natural world of crucial practical importance. This course explores the conditions for moral judgment when interests such as employment and production conflict with environmental issues. Its topics include ancient, traditional, and modern adjudications of the appropriate relation between human persons and nature. Course readings and discussion aim at using philosophical strategies to generate an ethics suitable for organic life.

3322 World Religions (3-3-0)

Prerequisite: ENG 1302.

A study of religion and religious experience around the world.

3323 Philosophy of Religion (3-3-0)

Prerequisite: ENG 1302.

Essence and meaning of religion. A consideration of the problems of faith and reason, the nature of deity, arguments for and against God's existence; nature of evil.

3399 Directed Study in Philosophy

Prerequisites: Junior standing; formal approval by department chair and dean; cumulative GPA of 3.0 and GPA of at least 3.3 in the specific area of directed study. Selected topics in the field; intensive individual study under the guidance of a member of the faculty.

3340 Postmodern Theory (3-3-0)

Prerequisites: Both PHIL 2301 and 2302, or Contemporary Philosophy, or permission of the instructor.

This class will study the development of postmodern the-

ory in philosophy and its influences on political theory, cultural studies, science, and the arts. In addition to addressing criticisms from ethical theorists, feminists, and philosophers of science, the course will consider the effects of postmodernism on the future of philosophy.

4315 Symbolic Logic (3-3-0)

Prerequisite: An introductory-level philosophy course or permission of instructor.

An introduction to the principles of ordered thought, discussing the logic of predicates, quantifiers; non-deductive arguments; calculation of probabilities, statistical inference, propositional and predicate calculus.

4390 Special Topics in Philosophy (3-3-0)

Prerequisite: 3 hours in Philosophy or permission of the instructor.

Selected topics in philosophy. Topics may vary from semester to semester. Course may be repeated for credit when topics vary.

Physics (PHYS)

1107 General Physics Laboratory I (1-0-3)

Prerequisite: Credit or enrollment in PHYS 1307.

Laboratory fee required. \$12.

Topics include: mechanics, bulk properties of matter, heat and waves. (PHYS 1101)

1108 General Physics Laboratory II (1-0-3)

Prerequisite: Credit or enrollment in PHYS 1308.

Laboratory fee required. \$12.

Topics include: electric and magnetic fields, DC and AC circuits, non-linear devices, geometrical and physical optics, and atomic and molecular physics. (PHYS 1102)

1301 Introduction to Solar System Astronomy (3-2-2)

Prerequisite: Credit or enrollment in MATH 1301 or MATH 1310.

Laboratory fee required. \$12.

This course is a survey of the history of astronomy, its technologies and physical principles, the solar system and its origins. Recent discoveries and the competing theories to interpret them are discussed, as are interactions between astronomy and society such as technology spin-offs and light pollution. Students are introduced to scientific measurement and error. Indoor and outdoor experiments are integrated into the course, including the use of telescopes and photography of the moon. Recent data provided by NASA and other agencies are introduced. Up to three evening observing sessions are required for this course.

1302 Introduction to Stellar and Galactic Astronomy (3-2-2)

Prerequisite: Credit or enrollment in MATH 1301 or MATH 1310.

Laboratory fee required: \$12.

This course is a survey of stellar and galactic systems. The course surveys the evolution and properties of stars, galaxies, clusters of galaxies, the properties of

interstellar matter, cosmology and the effort to find extraterrestrial life. Competing theories that address recent discoveries are discussed. The role of technology in space sciences, the spin-offs and implications of such are presented. Visual observations and laboratory exercises illustrating various techniques in astronomy are integrated into the course. Recent results obtained by NASA and other agencies are introduced. Up to three evening observing sessions are required for this course, one of which will take place off campus (George Observatory at Brazos Bend State Park.)

1307 General Physics I (3-3-0)

Prerequisites: MATH 1301 and MATH 1302 or the equivalent and credit or enrollment in PHYS 1107.

The elementary principles of mechanics, heat and wave motion using elementary trigonometry and algebra. Topics include kinematics, dynamics of particles and rigid bodies; conservation of mass, momentum and energy; simple harmonic motion and characteristics of waves, mechanical and thermal properties of solids and fluids; and thermal properties, kinetics and dynamics of ideal gases. Credit for both PHYS 1307 and PHYS 2401 may not be applied toward a degree. (PHYS 1301)

1308 General Physics II (3-3-0)

Prerequisites: PHYS 1307 and credit or enrollment in PHYS 1108.

Continuation of PHYS 1307. Elementary principles of electromagnetism, optics and modern physics. Topics include: static electric and magnetic fields and the motion of charged particles therein; induced electric and magnetic fields; DC and AC circuits; geometrical and physical optics; the concept of quantization and the properties of the atom and its nucleus. Credit for both PHYS 1308 and PHYS 2402 may not be applied toward a degree. (PHYS 1302)

2101 Physics Laboratory I (1-0-3)

Prerequisite: Credit or enrollment in PHYS 2401.

Laboratory fee required. \$12.

Topics include linear and rotational motion, collisions, simple harmonic motion and thermal properties of matter. (PHYS 2125)

2102 Physics Laboratory II (1-0-3)

Prerequisite: Credit or enrollment in PHYS 2402.

Laboratory fee required. \$12.

Topics include static electric and magnetic fields and electron motion therein, DC and AC circuits including linear and nonlinear devices and properties of electromagnetic waves, and geometrical and physical optics. (PHYS 2126)

2401 Physics I (4-4-0)

Corequisites: PHYS 2101 and MATH 2401.

Topics include: kinematics and dynamics in one, two and three dimensions, statics, dynamics, potentials, conservation of energy and momentum (linear and angular), rotational kinematics and dynamics, oscillations, gravitation, fluid mechanics, thermal properties of matter, kinetic theory of gases and the first and second law of thermodynamics. (PHYS 2425)

- 2402 Physics II (4-4-0)**
Prerequisites: Grade of C or better in PHYS 2401, credit or enrollment in PHYS 2102, and credit or enrollment in MATH 2402.
 Topics include: electric charge, electric fields and potentials, Gauss' Law, capacitors and dielectrics, AC and DC electrical circuits, magnetic fields, the Biot-Savart Law, Faraday's Law, magnetic properties of matter, Maxwell's equations and electromagnetic waves and optics. (PHYS 2426)
- 3300 Undergraduate Research (3-0-9)**
Prerequisites: Approval by Natural Science advisor and a minimum GPA of 2.5, and permission of instructor.
 Independent investigation of a specific topic problem in physics research under the direction of a selected faculty member.
- 3307 Modern Physics I (3-3-0)**
Prerequisites: PHYS 2402 or PHYS 1308 and credit or enrollment in MATH 2403.
 Fundamental concepts of quantum physics and special relativity, developed and applied to atomic structure and spectra, nuclear reactions, solid state physics and other related topics of current interest.
- 3330 Statistical and Thermal Physics (3-3-0)**
Prerequisites: PHYS 2402 and MATH 2403.
 See CHEM 3330.
- 3393 Intermediate Mechanics I (3-3-0)**
Prerequisites: PHYS 2401 or PHYS 1307 and credit or enrollment in MATH 3301.
 The classical mechanics of particles and systems of particles, and rigid bodies. Newtonian mechanics, linear and non-linear oscillations, Euler's equations and Lagrangian and Hamiltonian dynamics.
- 3399 Directed Study in Physics**
Prerequisite: Formal approval by department chair and dean; junior standing; minimum GPA of 3.0.
 Selected topics in the field; intensive individual study under the guidance of a faculty member.
- 3401 Electronics for Scientists and Engineers (4-2-5)**
Prerequisites: PHYS 2102 and PHYS 2402, or PHYS 1108 and PHYS 1308.
Laboratory fee required. \$24.
 Electronics and electronic instrumentation. Lecture concepts are applied and extended in the laboratory. Review of circuit theory, active devices, digital circuits and design of digital instruments using integrated circuits.
- 4308 Quantum Physics (3-3-0)**
Prerequisites: PHYS 3307, MATH 2403 and MATH 3301.
 An introduction to quantum theory and basic elements of quantum mechanics through the Schroedinger and matrix approaches, barrier penetration, simple perturbation with applications to atomic and nuclear spectroscopy, condensed matter and other appropriate topics.
- 4320 Physical Properties of Materials (3-3-0)**
Prerequisite: PHYS 3307.
 A survey of the electrical, magnetic and thermal prop-

erties of modern materials. Selected systems include metals and alloys, semiconductors, ceramics, liquid crystals, and polymers. Practical applications, particularly to physics and chemistry, will be discussed and current literature topics will be introduced in the lecture-discussions.

- 4380 Field Experience**
Prerequisites: At least 75 hours and departmental approval.
 Field experience integrates theory and academic laboratory experience with work experience in industrial, government or institute laboratories. May be repeated for additional credit; 6 hours may be applied toward a degree.
- 4399 Senior Honors Thesis**
Prerequisites: Senior standing and enrollment in the Honors Program in the Natural Sciences.
 A research project, supervised by a member of the natural sciences faculty or scientist at an affiliated research institution or laboratory. The completed research project must be presented in both written and oral form to the science faculty. No more than six hours credit for this course may be applied toward a degree.
- 4401 Applied Electromagnetism and Optics (4-3-3)**
Prerequisites: PHYS 2402, MATH 2403 and MATH 3301.
Laboratory fee required. \$12.
 An introduction to the fundamentals of electromagnetism. Multipole fields, Laplace and Poisson equations, Maxwell equations, electromagnetic waves, reflection and refraction, spherical scalar waves, interference and diffraction phenomena. Laboratory applications of electromagnetic and optical phenomena.

Political Science (POLS)

- 2303 United States Government I (3-3-0)**
Prerequisite: Enrollment in or completion of ENG 1301.
 Examines the political systems of the United States and Texas. Focuses on constitutions, federalism, the development and organization of political parties, public opinion and the role of pressure groups. (POLS 2301)
- 2304 United States Government II (3-3-0)**
Prerequisite: Enrollment in or completion of ENG 1301.
 Examines the three branches of government at both state and national levels and analyzes the role of each in the making of public policy. Selected topics on domestic and foreign policy are included. (POLS 2302)
- 3301 Introduction to Public Administration (3-3-0)**
Prerequisites: POLS 2303, POLS 2304 and junior standing.
 The field of public management, including a comprehensive view of the dynamics of policy formation and implementation in governmental agencies: structures and procedures, organizational behavior, administrative accountability, personnel administration, financial administration and public service as a career.

- 3302 Public Policy Analysis (3-3-0)**
Prerequisites: POLS 2303, POLS 2304 and junior standing.
 An examination and appraisal of the various theories which have been advanced to explain the definition of public problems and creation of government agendas, government's action in formulating, adopting and implementing policies to address these problems and the impact that government policies actually have on society. Selected policy areas will be examined in detail.
- 3303 Urban Politics (3-3-0)**
Prerequisites: POLS 2303, POLS 2304 and junior standing.
 The American urban center within its political environment, with emphasis on social, economic and governmental problems, as well as urban services and the process of policy formation.
- 3304 Introduction to Constitutional Law (3-3-0)**
Prerequisites: POLS 2303, POLS 2304 and junior standing.
 Major U.S. Supreme Court decisions which have defined the constitutional boundaries of the American political system. The Constitution and its development through judicial interpretation. Emphasis is on the distribution of power in the national government, between the national government and the states, and between government and the individual.
- 3305 Principles of Political Science (3-3-0)**
Prerequisites: POLS 2303, POLS 2304 and junior standing.
 A study of the basic concepts of political science and various methodologies of the discipline.
- 3306 Civil Liberties in the United States (3-3-0)**
Prerequisites: POLS 2303, POLS 2304 and junior standing.
 The judicial interpretations of political and civil rights in the Constitution. Emphasis is on principles related to civil liberties and civil rights.
- 3307 The American Presidency (3-3-0)**
Prerequisites: POLS 2303, POLS 2304 and junior standing.
 The role of the president in the American political system, through an examination of presidential relationships with Congress, the bureaucracy and the public.
- 3309 Texas Politics (3-3-0)**
Prerequisites: POLS 2303, POLS 2304 and junior standing.
 This course will cover the current political system in Texas including historical background. It will also show you what you can do to affect politics in Texas and nationally.
- 3310 American Legislatures (3-3-0)**
Prerequisites: POLS 2303, POLS 2304 and junior standing.
 This course in American legislatures compares the structures and functions of local, state and national legislatures across time and across legislative agendas and interest groups.
- 3311 Campaign Politics (3-3-0)**
Prerequisites: POLS 2303, POLS 2304 and junior standing
 Campaign politics examines recent American election contests and the various strategies candidates and parties have used to achieve electoral success. Topics include the legal environment of national elections, parties and partisanship, voter interest and turnout, theories of voter behavior, campaign finance, the mass media, public opinion polls and campaign reform.
- 3312 Hispanic Politics (3-3-0)**
Prerequisite: POLS 2303, POLS 2304.
 Examines the role of Hispanics in American politics. Evaluates how Hispanics have impacted and been impacted by American political institutions. Investigates theories of group formation and group identity, political participation and representations, as well as specific issues impacting Hispanics.
- 4301 The American Legal System (3-3-0)**
Prerequisites: POLS 2303, POLS 2304 and junior standing.
 An overview of the U.S. legal system, with emphasis on the courts in an urban environment.
- 4302 Comparative Politics (3-3-0)**
Prerequisites: POLS 2303, POLS 2304 and junior standing.
 The study of comparative politics aims at training students in systematically, critically and analytically examining the political, economic and social dynamics of nations in the international political system. More specifically, this course provides students with an in-depth knowledge about a particular region of the world. The region emphasized may differ from semester to semester. May be repeated for credit when the area focus changes.
- 4303 International Politics (3-3-0)**
Prerequisites: POLS 2303, POLS 2304 and junior standing.
 The study of international politics requires that the student discern who/what are the key actors in world politics; from what perspectives to view global events; determine if there are regular behavior patterns of such global actors; what are the stimuli of such behavior; and, to what extent does change in the behavior patterns of these key actors lead to changes in the structure of the international system.
- 4304 American Political Thought (3-3-0)**
Prerequisites: POLS 2303, POLS 2304 and junior standing.
 The early influence of European thought on the formation of a purely American political belief system and the influence of modern American thought on the current political system.
- 4305 War in the Modern World (3-3-0)**
Prerequisites: POLS 2303, POLS 2304 and junior standing.
 An investigation into the causes and correlates of conflict in our time and how conflicts may be peacefully resolved.
- 4306 Women and Politics (3-3-0)**
Prerequisites: POLS 2303, POLS 2304 and junior standing.

Examines the changing political role of women in the United States and compares it to that of women around the world. Investigates political attitudes and values, voting behavior, recruitment, and performance of women in the political arena, as well as the influence of women on public policy.

4390 Selected Topics in Political Science (3-3-0)

Prerequisites: POLS 2303, POLS 2304 and junior standing.

Selected topics in political science. Topics may vary from semester to semester, and the course may be repeated when the topics vary. Topics include: Comparative politics, American political thought, international relations, development of political ideas, Texas politics, campaign politics, and the U.S. Congress.

6301 American Government and Politics (3-3-0)

Prerequisite: Graduate standing.

This course is intended to introduce graduate students to the major theoretical concepts and important readings in the study of American politics and government. Students will read books and articles from a wide range of topics, including studies of the origins of American constitutionalism, federalism, legislatures, courts, executives, bureaucracies, elections, mass opinion and political behavior at both national and state levels.

6302 Elements of Politics (3-3-0)

Prerequisite: Graduate standing.

This course is intended to introduce graduate students to the major theoretical concepts in the study of Political Science. Topics to be discussed include: approaches to the study of political science; the nature of power, influence, authority; political ideologies; relationship of politics and culture; the individual in politics; political parties and groups; legislatures, executives, bureaucracies, and legal systems; interaction of local, national, international units. While some of the material will have an American focus, this course has a broader conceptual, geographical and temporal focus than POLS 6301.

Professional Land Management (PLM)

2301 Introduction to Oil Industry and Professional Land Management (3-3-0)

Prerequisite: Sophomore standing.

An overview of the oil industry and professional land management functions as they relate to the oil and gas exploration, leasing, drilling, production, transportation and economics of the industry. Special emphasis is given to the understanding and use of oil and gas maps, land mensuration and land description.

3399 Directed Study in PLM

Prerequisite: Formal approval of department chair and dean.

Selected topics in professional land management;

intensive individual study under the guidance of a member of the professional land management faculty.

4301 Legal Aspects of Land Management (3-3-0)

Prerequisites: RE 2302, PLM 2301 and BA 3302.

Oil and gas law including legal concept of mineral interest, transactions which affect the mineral interest such as leasing, pooling and unitization, and governmental regulation of minerals.

4303 Land Management Practice (3-3-0)

Prerequisites: PLM 2301, PLM 4301 or departmental approval. Concurrent enrollment in PLM 4304.

Development of the technical skills related to understanding the terminology, methodology, planning, strategies and management of the professional land management functions as they relate to: (1) the determination of mineral ownership; (2) negotiation, acquisition, maintenance and disposition of publicly or privately owned oil and gas interests; (3) title curative and the due diligence functions; (4) pooling and unitization; (5) lease administration and payment of the proceeds from oil and gas production; and (6) interpretation, negotiation, preparation, execution and administration of oil and gas contracts in the USA and internationally, as they relate to farmouts, well trades, operating agreements and host government contracts. Additional emphasis is given to the ethical and professional standards of the petroleum landman as part of the exploration/production team.

4380 Field Experience

For more information and qualifications see Field Experience in the College of Business section of this catalog and/or the department chair for your declared major.

Psychology (PSY)

1303 General Psychology (3-3-0)

Prerequisite: Enrollment in or completion of ENG 1301.

A survey of the essential subject areas, major theories and approaches to the scientific study of behavior and mental processes. (PSYC 2301)

2302 Social Psychology (3-3-0)

Prerequisite: PSY 1303.

The study of the psychological processes that occur within groups and between groups as a function of the individual. (SOCI 2326 or PSYC 2319)

2306 Adjustment (3-3-0)

Prerequisite: PSY 1303.

Psychological theory and research as they relate to contemporary problems of human behavior. Factors contributing to healthy individuals' relationships with themselves and their environment. (PSYC 2315)

2310 Human Growth and Development (3-3-0)

Prerequisite: PSY 1303.

A lifespan approach to the theories, principles, and characteristics of human development.

- 3301 Industrial/Organizational Psychology (3-3-0)**
Prerequisite: PSY 1303.
 Application of psychological theory to problems of selecting, training, supervising and motivating individuals in organizational settings.
- 3302 Principles of Educational Psychology (3-3-0)**
Prerequisite: PSY 1303.
 An introduction to psychological concepts within the context of education. Additional emphasis on historical, cultural, and legal issues in education.
- 3303 Child Psychology (3-3-0)**
Prerequisites: PSY 1303 and 3 additional hours in psychology.
 The study of development from conception up to adolescence from theoretical and practical viewpoints. Emphasis is on the physical, cognitive, social, and emotional changes which occur during childhood.
- 3305 Adolescent Psychology (3-3-0)**
Prerequisite: PSY 1303 and 3 additional hours in psychology.
 A study of adolescent development from theoretical and practical viewpoints. Emphasis is on the physical, cognitive, social and emotional changes which occur during adolescence.
- 3309 Adult Psychology (3-3-0)**
Prerequisites: PSY 1303 and three additional hours in psychology.
 The psychological, biological and sociological factors which affect the major stages of adult development.
- 3310 Psychology of Women (3-3-0)**
Prerequisites: PSY 1303 and three additional hours in psychology.
 A survey of the major theories and issues involved in understanding the impact of gender on thinking and behaving.
- 3311 Biological Psychology (3-3-0)**
Prerequisites: PSY 1303 and 3 additional hours in psychology and one of the following: BIOL 1301, 1303, 1310.
 A survey of theory and research in the biology of mind and behavior, focusing on the internal processes underlying the activities of the organism, learning, memory, motivation, perception, and emotion. Important biopsychological phenomena will be discussed such as the biological mechanisms underlying eating and drinking, sexual behavior, sleep and dreaming, and stress and the immune system. Other topics may include the structure and function of the nervous, neuroendocrine, and sensorimotor systems, as well as basic principles of evolution and genetics.
- 4301 The History of Psychology (3-3-0)**
Prerequisites: PSY 1303, six additional hours in psychology and junior standing.
 Major theoretical positions and research that contributed to development of psychology as a scientific discipline. Emphasis on developments from the late 19th century to the present.
- 4302 Abnormal Psychology (3-3-0)**
Prerequisites: PSY 1303, six additional hours in psychology and junior standing.
 The etiology, classification and treatment of psychopathological disorders from these major theoretical perspectives: psychodynamic, behavioral, humanistic, physiological and sociocultural.
- 4303 African-American Issues in Psychology (3-3-0)**
Prerequisites: PSY 1303, six additional hours in psychology and junior standing.
 This course surveys past and contemporary issues pertaining to the African American, including historical, developmental, clinical, educational and social issues.
- 4304 Learning and Behavior (3-3-0)**
Prerequisites: PSY 1303, six additional hours in psychology and junior standing.
 Survey of theory and research in the general principles of human and animal learning, with a particular focus on the fundamental processes involved in classical and operant conditioning. Special emphasis on human learning and behavior with practical applications in family and work life.
- 4305 Memory and Cognition (3-3-0)**
Prerequisites: PSY 1303, six additional hours in psychology and junior standing.
 Survey of theory and research in cognitive processes with an emphasis in human memory. Topics include learning, memory, perception, language, reasoning, problem-solving, and decision-making. Introduction to the broader field of cognitive science and neurocognition.
- 4306 Theories of Personality (3-3-0)**
Prerequisites: PSY 1303, six additional hours in psychology and junior standing.
 Major contemporary theories of personality are examined along with their implications for clinical application and research.
- 4307 Counseling and Psychotherapy (3-3-0)**
Prerequisite: PSY 1303, six additional hours in psychology, and junior standing.
 An introduction to both the theory and practice of counseling and psychotherapy, including a survey of some of the major psychotherapeutic approaches used today, practice with applying them to understand and treat a variety of case study examples, and discussion of various personal, professional, and ethical issues involved in practice.
- 4308 Psychological Assessment (3-3-0)**
Prerequisites: PSY 1303, six additional hours in psychology and junior standing.
 The theory and practice of psychological tests, including a survey of the commonly used methods, techniques and instruments for measuring and assessing individual differences with regard to intelligence, personality, interests, aptitude and achievement.
- 4370 Senior Seminar in Psychology (3-3-0)**
Prerequisites: PSY 1303, six additional hours in psychology and Junior standing.

In-depth investigation of selected topics in psychology. May be repeated for credit when topic varies. (Pending Coordinating Board approval)

Reading (RDG)

1101 TASP Tutorial (1-1-0)

Tutorial instruction designed to prepare students to pass the Reading component of the state-mandated Texas Academic Skills Program examination.

1300 Reading (3-3-0)

Prerequisite: Placement examination is required.

A review of successful techniques for improving vocabulary, comprehension, interpretation and evaluation, and basic study skills. This course may not be used to satisfy degree requirements.

Social Sciences (SOS)

2304 Research Methods in the Social Sciences (3-3-0)

Prerequisite: Three hours in anthropology, criminal justice, history, political science, psychology or sociology.

Introduction to research methods in the social sciences. Basic principles and procedures in research design, data collection, report writing, and theory construction are presented. Emphasis on quantitative methodology and statistical analysis of data with computer software packages used by researchers in the social sciences.

2308 Human Sexuality (3-3-0)

Prerequisite: Any one of the following: ANTH 2301, ANTH 2302, PSY 1303 or SOC 1303.

Physiological, psychological and sociological factors in human sexuality. The human sexual system, sexual activity, today's sexual attitudes and behavior, alternate lifestyles and sexual inadequacies. (PSYC 2306 or SOCI 2306)

3301 Social Gerontology (3-3-0)

Prerequisite: Any one of the following: ANTH 2301, ANTH 2302, PSY 1303 or SOC 1303.

A multidisciplinary approach to the study of aging. In addition to examining and analyzing the physiological, psychological, and social aspects of aging, the impact of the elderly on current global demographics and the ethical dilemmas of our aging society are discussed.

3304 Death and Dying (3-3-0)

Prerequisites: Three hours in psychology or sociology beyond ANTH 2301, ANTH 2302, PSY 1303 or SOC 1303 and junior standing.

Various psychological, secular and religious attitudes, beliefs and practices toward death and dying. The stages of death, euthanasia, cultural and religious customs, and the psychological impact of death on the survivors.

3312 Statistics in the Social Sciences (3-3-0)

Prerequisites: 3 hours in anthropology, criminal justice,

history, political science, psychology or sociology and completion of MATH 1301 or MATH 1310.

An introductory course presenting the computation and use of descriptive and inferential statistics in the social sciences. Students are taught how to calculate statistical measures by hand and by using statistical software packages employed by researchers in the social sciences.

3399 Directed Study in the Social Sciences

Prerequisites: Junior standing; approval of department chair and dean; cumulative GPA of 3.0 and GPA of at least 3.3 in the specific area of directed study.

Intensive individual study under the guidance of a member of the faculty on selected topics in the social sciences.

4301 Special Projects in the Social Sciences (3-3-0)

Prerequisites: Senior standing and department approval.

Provides a culminating experience for the Social Sciences or Interdisciplinary Studies major. May include a senior thesis or another special project worked out between the student and the department.

4302 The Study of the Future (3-3-0)

Prerequisites: Junior standing plus 6 hours in the behavioral sciences beyond ANTH 2301, ANTH 2302, PSY 1303 or SOC 1303.

An introduction to the study of the future: the history of the futurist movement, future trends and issues, the impact of the future on the family, the individual and lifestyles. How future-oriented thinking can assist community organizations in forecasting and planning.

4380 Field Experience (3-3-0)

Prerequisites: Sixty hours toward degree, 2.5 GPA, and approval of department chair.

Work experience in public or private sector positions of relevance to the social sciences disciplines. Conferences with the instructor and other academic assignments are required. May be repeated for credit.

4399 Directed Study in the Social Sciences

Prerequisites: Senior standing, approval of department chair and dean; cumulative GPA of at least 3.0 and a GPA of at least 3.3 in the specific area of the directed study.

Intensive individual study under the guidance of a member of the faculty on selected topics in the social sciences.

4601 Special Projects in the Social Sciences

Prerequisites: Senior standing and department approval.

Provides a culminating experience for the Social Sciences or Interdisciplinary Studies major. May include a senior thesis or a special project worked out between the student and the department.

4680 Field Experience

Prerequisites: 60 hours toward degree, 2.5 GPA, and approval of department chair.

Work experience in public or private sector positions of relevance to the social sciences disciplines. Conferences with the instructor and other academic assignments are required.

Sociology (SOC)

1303 Principles of Sociology (3-3-0)

Prerequisite: Enrollment in or completion of ENG 1301.
An introduction to the scientific study of human society. This sociological perspective focuses on new ways of looking at society and its component parts, so the student is encouraged to develop a critical view of society, social processes and individual roles. (SOCI 1301)

2302 Social Problems (3-3-0)

Prerequisite: SOC 1303.
The relationship of social problems to social structure with specific emphasis on such problems as crime, poverty, urban deterioration and aging. (SOCI 1306)

2304 Sex Roles (3-3-0)

Prerequisite: Any one of the following: ANTH 2301, ANTH 2302, PSY 1303 or SOC 1303.
The changing male and female roles in contemporary society. Traditional sex role socialization, resulting stereotypical attitudes and behavior, the status of both men and women in society. Emerging trends in employment, family roles and male-female relationships.

2306 Introduction to Social Work (3-3-0)

Prerequisites: SOC 1303, sophomore standing or permission of the department.
An introduction to the broad field of social work, with an emphasis on social policy, community organization and social services. Attention is given to ideology, values, methods and the issue of professionalism. (SOCI 2361)

3303 Sociology of the Family (3-3-0)

Prerequisites: SOC 1303 and junior standing.
The family as an institution; theoretical perspectives on the family and comparative analyses of alternative lifestyles in American society and other cultures are emphasized.

3304 Minorities in America (3-3-0)

Prerequisites: SOC 1303 and junior standing.
A survey of minorities and intergroup relations in past and present American society, with emphasis on theoretical perspectives and possible future trends.

3306 Social Inequality (3-3-0)

Prerequisites: SOC 1303 and junior standing.
U.S. social and economic inequality, focusing on theory, analysis and data. Topics discussed include class system in the United States, differentials in economic levels, family, education, life-styles, class consciousness; racism and sexism as structures of inequality; the relationship between social class and political power and the future of inequality.

3307 Sociology of Deviance (3-3-0)

Prerequisites: SOC 1303 and junior standing.
A survey of deviant behavior in today's society, including the meaning of deviance from the standpoint of norms and society's reaction as well as theoretical approaches to explain deviance.

3309 Sociology of Health and Illness (3-3-0)

Prerequisite: SOC 1303 and junior standing.

A social history and cross-cultural analysis of the institution of medicine. Social organization of health care and the medical profession, social factors affecting health and illness, and the "medicalization" of social problems.

3312 Aggression and Violence in Society (3-3-0)

Prerequisites: SOC 1303 and junior standing.
An overview of violence trends in American society including youth, domestic, and other types of violent crime. Sociological and social psychological theories in cross-cultural perspectives will be applied to explain aggression and its manifestation in violence. Current social policy impact on violence and other prevention issues will also be discussed. (Pending Coordinating Board approval)

3313 Drug Use and Society (3-3-0)

Prerequisite: SOC 1303 and junior standing.
Employing perspectives of both sociology and social psychology, this course explores the use of legal and illegal substances, mainly with reference to the United States. Topics discussed will be: 1) the history of used and attitudes toward tobacco, alcohol, marijuana, cocaine, heroin, and other substances; 2) the political economy of drug production and distribution; 3) social psychological stages of substance use involvement; 4) contemporary approaches to substance use prevention among adolescence; 5) socio-cultural causes of substance use.

4301 Political Sociology (3-3-0)

Prerequisites: SOC 1303, three additional hours in sociology and junior standing.
The impact of the political world on everyday life. The role of the individual as a participant or non-participant in political affairs; the effect of the political arena on other societal institutions; and practical politics as a part of individual and group survival strategies.

4302 Sociocultural Analysis of Film (3-3-0)

Prerequisite: SOC 1303
This course addresses the process through which American cultural values are encoded in popular movies, the rationalization and glossing of value conflicts, and the symbolic construction of the social world through film. Possible genres include westerns, police/detective, depression era comedies, and recent films illustrating the confusion and anxiety endemic to post-industrial post-modern society.

4303 Sociology of Work (3-3-0)

Prerequisites: SOC 1303, three additional hours in sociology and junior standing.
Work as a social phenomenon and its role in an individual's life. Why people work; challenges to the work ethic; the influence of technology on work; work places as structured social organizations; and the future of work.

4305 Urban Sociology (3-3-0)

Prerequisites: SOC 1303, three additional hours in sociology and junior standing.
A study of urban and suburban life in terms of social

structure and organization, metropolitan development and formulation of public policy.

4307 Public Opinion and Mass Communication (3-3-0)

Prerequisites: SOC 1303, three additional hours of sociology and junior standing.

The nature and development of public opinion and the process and impact of mass communication.

4315 Social Theory (3-3-0)

Prerequisites: SOC 1303, 6 additional hours in SOC, junior standing.

Explores the theoretical perspectives that social and behavioral scientists have developed over the past 200 years to analyze processes producing social order and social changes. Practical application of these perspectives to various social issues also will be emphasized.

4390 Special Topics in Sociology (3-3-0)

Prerequisite: SOC 1303 and three additional hours in sociology, junior or senior standing, or permission of the instructor.

Selected topics in sociology. Topics may vary from semester to semester, and the course may be repeated when topics vary.

Spanish (SPAN)

1305 Conversational Spanish (3-3-0)

Not open to any student with extensive background in Spanish.

Emphasis on basic vocabulary, idiom and elementary grammatical structures. Elective credit only. Does not provide freshman foreign language credit.

1401 Elementary Spanish I (4-3-1)

Should not be taken by native speakers of Spanish or by students who have had two or more years of high school Spanish.

Laboratory fee required. \$10.

Instruction in understanding, speaking, reading and writing Spanish with emphasis on grammatical structures. Provides freshman foreign language credit.

1402 Elementary Spanish II (4-3-1)

Prerequisite: SPAN 1401 or equivalent.

Should not be taken by native speakers of Spanish or by students who have had more than two years of high school Spanish.

Continuation of SPAN 1401. (SPAN 1412)

1601 Experiencing Spanish I (6-6-0)

Should not be taken by native speakers of Spanish or by students who have had two or more years of high school Spanish or one semester of college Spanish.

This course is designed to enable students to learn Spanish language and culture more quickly with Accelerative Learning techniques. Students will master Elementary I material through role-playing, games, music, and movement with this methodology that addresses visual, audio, and kinesthetic learning modes. Note: This course covers the same material as

SPAN 1401. Together with SPAN 1402 or 1602, it provides freshman foreign language credit for degrees requiring a foreign language.

1602 Experiencing Spanish II (6-6-0)

Prerequisite: SPAN 1401, 1601 or equivalent.

Should not be taken by native speakers of Spanish or by students who have had three or more years of high school Spanish or two semesters of college Spanish.

A continuation of SPAN 1601, this course is designed to enable students to learn Spanish language and culture more quickly with Accelerative Learning techniques. Students will master Elementary I material through role-playing, games, music, and movement with this methodology that addresses visual, audio, and kinesthetic learning modes.

NOTE: This course covers the same material as SPAN 1402. SPAN 1402 or SPAN 1602 complete freshman foreign language credit for degrees requiring one year of 8 hours of foreign language.

2301 Intermediate Spanish I (3-3-0)

Prerequisite: SPAN 1402, 1602 or equivalent. Should not be taken by Latin Americans or Spaniards.

Grammar review with continued emphasis on oral and listening skills and increased attention to writing and reading.

2302 Intermediate Spanish II (3-3-0)

Prerequisite: SPAN 2301 or equivalent.

Should not be taken by Latin Americans or Spaniards. Continuation of SPAN 2301, with more emphasis on writing and reading skills. (SPAN 2312)

2311 Spanish I for Native Speakers (3-3-0)

Prerequisite: Placement by examination.

A course for college students educated in the United States whose first or home language is Spanish. Goals are to acquaint students with Spanish in its written form and to expand the students' overall knowledge of the language. Focus is on readings and vocabulary development, comprehension of grammatical structures, spelling, and improved spoken and written Spanish.

2312 Spanish II for Native Speakers (3-3-0)

Prerequisite: SPAN 2311.

Continuation of SPAN 2311. (SPAN 2315)

3301 Advanced Spanish Grammar and Composition (3-3-0)

Prerequisite: SPAN 2302 or placement by examination.

A course in advanced Spanish grammar and composition with a focus on the mastery of syntax and spelling, and the improvement of writing skills through the study of various rhetorical modes and writing for special purposes.

3310 Spanish Conversation through Literature (3-3-0)

Prerequisites: SPAN 2302 or placement through examination.

This course combines the study of literature in Spanish with the study of spoken Spanish. Students will read and discuss in Spanish selections of literature in various genres. They will learn to analyze while improving their spoken Spanish. For this reason, ample time will be devoted to students' discussion of assigned readings.

4310 Spanish Linguistics (3-3-0)

Prerequisites: Completion of SPAN 3301 or approval of chair.

Descriptive and contrastive study of the phonetics, phonology, morphology and syntax of Spanish with English. The course is taught completely in Spanish.

4390 Special Topics: Spanish (3-3-0)

Prerequisite: SPAN 3301.

Special topics in Spanish language and literature, such as contemporary Latin American or Spanish literature, survey of Latin American or Spanish literature. With permission of department chair, may be repeated once for credit.

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- Nguyen, Vien** (1990) Lecturer in Mathematical Sciences. BS, Lamar University, 1988; MS, 1990.
- Oberhoff, Kenneth E.** (1974) Associate Professor of Mathematical Sciences. BA, Texas A&M University, 1965; MS, University of Houston, 1968; PhD, 1973.
- Omer, Khursheed** (1991) Associate Professor of Accounting. BCom, University of Karachi, 1962; MBA, 1964; MBA, University of Southern California, 1965; DBA, Memphis State University, 1990; CPA.
- O'Neil, Rory M.** (1988) Associate Professor of Biology. BS, University of Texas at Austin, 1978; MA, 1979; PhD, 1985.
- Padilla, Edwin** (1994) Assistant Professor of Spanish. BA, University of Puerto Rico, 1979; MA, University of Texas at El Paso, 1982; PhD, University of Houston, 2002.
- Paige, Susan** (2000) Instructor in Education. BA, University of St. Thomas, 1974; MEd, University of Houston, 1982.
- Pavletich, JoAnn** (1995) Associate Professor of English. BA, Southeastern Louisiana University, 1988; MA, University of Texas at Austin, 1990; PhD, 1995.
- Pelaez, Rolando** (1986) Associate Professor of Finance. BS, Louisiana State University, 1962; MA, 1964; PhD, University of Houston, 1973.
- Pelz, Mary Elizabeth** (1988) Associate Professor of Criminal Justice. BA, Stephen F. Austin State University, 1974; MA, 1976; PhD, Sam Houston State University, 1988.
- Penkar, Samuel H.** (1984) Associate Professor of Finance. MM, American Graduate School of International Management, 1976. DBA, Mississippi State University, 1984.
- Phelps, David Gene** (1994) Lecturer in Accounting. BBA, Baylor University, 1962; MBA, Sam Houston State University, 1993.
- Pincus, George** (1996) Professor of Engineering Technology. BS, Georgia Institute of Technology, 1959; MS, 1960; PhD, Cornell University, 1963; MBA, University of Houston, 1974; PE.
- Pointer, Lucille** (2002) Assistant Professor of Marketing. BS, Southern University, 1973; MBA, University of Wisconsin, 1974; PhD, Texas A&M University, 2000.
- Read, Lisa** (1998) Instructor of English. BS, Texas A&M University, 1979; MEd, Prairie View A&M University, 1988.
- Rebhun, Herbert F.** (1977) Professor of Computer Information Systems. BBA, University of Pittsburgh, 1955; ML, 1956; PhD, Florida State University, 1974.
- Rizzo, Sergio** (1995) Associate Professor of English. BA, University of California at Berkeley, 1986; MA, University of California at Riverside, 1988; PhD, 1993.
- Robbins, Ruth R.** (1980) Associate Professor of Computer Information Systems. BBA, Texas Southern University, 1971; MBA, University of Houston, 1974; EdD, 1986.
- Rodriguez, Dennis M.** (1976) Professor of Mathematical Sciences. BA, University of South Florida, 1965; MA, University of California at Riverside, 1966; PhD, 1969.
- Rosenthal-Simmons, Anna** (1991) Lecturer in Mathematical Sciences. BS, University of Houston, 1987; MS, Texas A&M University, 1988; MBA, University of Houston, 1990.
- Roubicek, Henry L.** (1983) Professor of Communication Studies. BA, The Ohio State University, 1974; MA, Purdue University, 1976; EdD, University of Maryland, 1983.
- Rubin-Trimble, Carolyn** (1999) Lecturer in Reading. BA, University of Houston, 1970; MEd, 1991; PhD, 2001.
- Ruthstrom, Carl R.** (1990) Associate Professor of Management. BS, West Texas State University, 1965; MS, University of Northern Colorado, 1979; PhD, University of Texas at Austin, 1986. CPM.
- Ryden, David Beck** (2001) Assistant Professor of History. BA, Connecticut College, 1990; MA, University of Delaware, 1993; PhD, University of Minnesota, 1999.
- Santos, Adolfo** (1997) Assistant Professor of Political Science. BGS, University of Houston-Downtown, 1990; PhD, University of Houston, 1998.
- Schmertz, Johanna** (2000) Instructor of English. BA, Carnegie-Mellon University, 1983; MA, State University of New York at Buffalo, 1990.
- Serrett, Randy K.** (1999) Assistant Professor of Accounting. BS, Louisiana State University, 1973; MS, University of Houston, 1983; PhD, 1986; CPA.
- Sheinberg, Edward R.** (1978) Assistant Professor of Engineering Technology. BS, Lamar University, 1968; ME, 1968; MME, University of Houston, 1971.
- Shelley, Deborah B.** (1993) Associate Professor of Communication Studies. BA, University of North Carolina at Chapel Hill, 1972; MA, San Francisco State University, 1974; PhD, Louisiana State University, 1976.
- Shelton, Margaret L.** (1989) Associate Professor of Accounting. BA, Rice University, 1971; MBA, University of Houston, 1980; PhD, 1986; CPA.

- Shipley, Margaret F.** (1987) Professor of Management. BS, Salisbury State College, 1969; MSIE, University of Pittsburgh, 1980; PhD, 1986.
- Sikka, Anjoo** (1994) Associate Professor of Education. BA, Maharaja Sayajirao University, India, 1983; MA, 1985; PhD, Mississippi State University, 1991.
- Simeonov, Plamen** (1999) Assistant Professor of Mathematical Sciences. BS, Sofia University, 1990; MS, 1992; PhD, University of South Florida, 1997.
- Siraengtaksin, Ongard** (1986) Professor of Mathematical Sciences. BSc, Chulalongkorn University, Thailand, 1976; ME, Lamar University, 1979; MS, 1981; PhD, University of Texas at Arlington, 1986.
- Slough, Scott** (2000) Assistant Professor Biology and Chemistry. BS, Stephen F. Austin State University, 1982; MEd, Sam Houston State University, 1992; MS, 1994; EdD, University of Houston, 1998.
- Smith, Charles** (1987) Professor of Finance. BS, McNeese State University, 1974; MBA, University of New Orleans, 1975; PhD, Texas A&M University, 1984.
- Smith, Charlotte** (2000) Lecturer in English. BS, University of Houston, 1986; MA, University of Houston-Clear Lake, 1988.
- Solomon, Frankie** (1993) Lecturer in Mathematical Sciences. BA, Grambling State University, 1971; MS, Texas Southern University, 1989.
- Spears, Larry G.** (1976) Professor of Chemistry. BS, University of Southwestern Louisiana, 1961; MS, 1963; PhD, University of Texas at Austin, 1966.
- Spilger, Ursula** (1990) Associate Professor of Business Law. BA, University of California at Berkeley, 1962; JD, University of Idaho, 1974; MBA, Boise State University, 1983; LLM, University of Houston, 1991.
- Stading, Gary L.** (2002) Assistant Professor of Management. BS, University of Illinois, 1984; MBA, Miami University, 1988; PhD, Texas A&M University, 1999.
- Stanberry, Kurt** (1996) Associate Professor of Business Law. BBA, Yale University, 1972; MBA, Temple University, 1974; JD, University of Houston, 1977.
- Strain, Charles R.** (1995) Associate Professor of Marketing. BBA, University of Mississippi, 1974; MBA, University of Southern Mississippi, 1982; DBA, Mississippi State University, 1994.
- Sullivan, M. Nell** (1996) Associate Professor of English. BA, Vanderbilt University, 1986; MA, Rice University, 1989; PhD, 1995.
- Taylor, Felicia** (2000) Assistant Professor of Education. BS, University of Florida, 1987; MEd, 1988; PhD, 2001.
- Thacker-Kumar, Leena** (1993) Associate Professor of Political Science. BA, Scottish Church College, 1982; MA, Miami University, 1988; PhD, 1993.
- Tharp, Douglas** (1976) Assistant Professor of Mathematical Sciences. BA, Rice University, 1960; MST, Rutgers University, 1969; MS, East Texas State University, 1986.
- Thielemann, Jane** (1991) Assistant Professor of Education. BS, University of Houston-Clear Lake, 1978; MA, University of Houston, 1991; EdD, 1999.
- Thomas, Lorenzo** (1987) Professor of English. BA, Queens College, City University of New York, 1967.
- Thomas, Tammis** (1995) Associate Professor of English. BA, University of Texas at Austin, 1984; MA, State University of New York at Buffalo, 1989; PhD, 1995.
- Turner, Stephanie** (2002) Assistant Professor of English. BA, Ball State University, 1982; MA, 1985; PhD, Purdue University, 2002.
- Turski, Jacek** (1990) Associate Professor of Mathematical Sciences. BS University of Warsaw, Poland, 1976; MS, McGill University, 1982; PhD, 1986.
- Uzman, Akif J.** (1997) Assistant Professor of Biochemistry and Biology. BS, University of Michigan, 1975; MS, 1976; PhD, University of California-Berkley, 1983.
- Vaden-Goad, Linda** (1990) Associate Professor of Psychology. BS, University of Houston, 1975; MA, 1987; PhD, 1990.
- Van Horn, Leigh** (2000) Assistant Professor of Education. BS, University of Houston, 1992; MS, University of Houston-Clear Lake, 1995; PhD, University of Houston, 2000.
- Villarreal, Beatrice** (2001) Assistant Professor of Education. BA, University of St. Thomas, 1972; MEd, Stephen F. Austin State University, 1977; PhD, The Pennsylvania State University, 1982.
- Vobach, Carol** (1969) Associate Professor of Mathematical Sciences. BA, Marymount College, 1962; MA, University of North Carolina at Chapel Hill, 1965; EdD, University of Houston, 1984.
- Wadhwa, Darshan L.** (1984) Professor of Accounting. BS, KGK College, Moradabad, India, 1964; MS, Roorkee University, Roorkees, India, 1967; MBA, Louisiana Tech University, 1972; DBA, 1988; CPA.
- Waller, William A.** (1983) Associate Professor of Mathematical Sciences. AA, Eastfield College, 1978; BS, North Texas State University, 1981; MS, 1983; PhD, University of Houston, 1989.
- Walsh, Robert T.** (1976) Assistant Professor of Criminal Justice. BS, Michigan State University, 1970; MS, Eastern Kentucky University, 1974.
- Wang, Hsiao-Ming** (2001) Assistant Professor of Criminal Justice. BC, Fen-China University, 1977; MBA, University of St. Thomas, 1992; PhD, Sam Houston State University, 1998.
- Wanguri, Deloris McGee** (1984) Associate Professor of Communication Studies. BA, University of Houston, 1973; MA, 1975; PhD, University of Texas at Austin, 1984.
- Webb, John** (2001) Assistant Professor of Psychology. BA, Mary Hardin-Baylor College, 1975; MA, St. Mary's University, 1978; MA, University of Houston, 1983; PhD, 1985.
- Williams, Marvin J.** (1988) Associate Professor of Accounting. BBA, University of Houston, 1980; MBA, 1982; JD, 1986; CPA, CMA.

Williams, Patrick S. (1990) Associate Professor of Psychology. BS, Michigan State University, 1971; MEd, Northeastern University, 1974; PhD, Texas Tech University, 1987.

Wilson, John U. (1989) Associate Professor of History. BS, Northern Illinois University, 1967; MA, 1969; EdD, 1978.

Wilson, Robert G. (1991) Director of the UHD Civic Jazz Orchestra and Lecturer in Music. BA, Sam Houston State University, 1969; MA, 1970.

Woods, Molly R. (1961) Professor of Administrative Management. BA, Sam Houston State University, 1959; MEd, 1961; EdD, University of Houston, 1985.

Woods-Stellman, Donna (1997) Assistant Professor of Education. BA, Louisiana Tech University, 1975; MEd, Louisiana State University, 1988; EdD, Oklahoma State University, 1992.

Xie, Shishen (1990) Associate Professor of Mathematical Sciences. BS, East China Normal University, China, 1982; MS, Texas Tech University, 1987; PhD, 1990.

Yoon, Jeong-Mi (1999) Assistant Professor of Mathematical Sciences. BS, Seoul National University, 1981; BS, 1984; MS, 1986; MS, University of California at Berkeley, 1991; PhD, 1999.

Zafiridis, Vasilis (1999) Assistant Professor of Mathematical Sciences. BS, Mississippi State University, 1984; MS, 1987; PhD, University of Houston, 1996.

Ziemer, Heidi E. (1999) Assistant Professor of Psychology. BA, California State University, Long Beach, 1991; MA, Rice University, 1998; PhD, 1999.

Professors Emeriti

Eckles, Robert (1984) Professor Emeritus of Marketing.

Fefer, Jean A. (1981) Associate Professor Emeritus of Chemistry.

Franks, Nicholas (1979) Assistant Professor Emeritus of English.

Freeman, Marjorie S. (1961) Assistant Professor Emerita of Mathematics.

Hebert, Mary Margaret (1977) Associate Professor Emerita of Administrative Services Management.

James, L. Frank (1975) Associate Professor Emeritus of Psychology.

Levy, Sylvia S. (1958) Associate Professor Emerita of English and Philosophy.

McNeill, I. Eugene (1984) Professor Emeritus of Accounting.

Miller, Jon, Associate Professor Emeritus of English

Price, Frank E. (1964) Assistant Professor Emeritus of Biology.

Robinson, W. Clyde (1982) Associate Professor Emeritus of Business Law.

Rooney, Walter (1976) Associate Professor Emeritus of Management.

Scalamogna, Don (1977) Associate Professor Emeritus of Business.

Sherman, Ruth (1975) Professor Emerita of Biology.

Small, Jo Ann (1975) Associate Professor Emerita of Psychology.

Suits, Marvin, Assistant Professor Emeritus of Business and Commerce.

Tinkler, James C. (1983) Professor Emeritus of Petroleum Land Management.

Tyson, Martha H. (1968) Associate Professor Emerita of Psychology.

Umland, Jean B. (1981) Associate Professor Emerita of Chemistry.

Wathen, L. James (1962) Assistant Professor Emeritus of Arts and Humanities.

Wilkinson, Edward S., Sr. (1969) Associate Professor Emeritus of Purchasing.

Williams, Raymond J. (1963) Assistant Professor Emeritus of History.

Wood, June P. (1960) Professor Emerita of Mathematics.

Wright, Ray G. (1966) Professor Emeritus of Philosophy.

Awards

Award for Excellence in Teaching

1982	R. Bowen Loftin, Natural Sciences
1983	Nancy T. Rich, Applied Mathematical Sciences
1984	John H. Hummel, Behavioral Sciences
1985	Shannon Doyle, Social Sciences
1986	Hank Roubicek, Arts and Humanities
1987	James C. Tinkler, Business Management and Administrative Services
1988	Susan K. Ahern, English
1989	Philip Castille, English
1990	Merrilee Cunningham, English
1990	Shohreh Hashemi, Finance, Accounting and Computer Information Systems
1991	Ray Wright, Social Sciences
1992	Jeffrey Flosi, Natural Sciences
1993	André de Korvin, Computer and Mathematical Sciences
1994	Jean Umland, Natural Sciences
1995	Dennis Rodriguez, Computer and Mathematical Sciences
1996	Linda Vaden-Goad, Social Sciences
1997	Byron Christmas, Natural Sciences
1998	Elias Deeba, Computer and Mathematical Sciences
1999	Lisa Waldner, Social Sciences
2000	Madeline Johnson, Management, Marketing, and Business Administration
2001	Tyra L. Montgomery, Natural Sciences
2002	Stephen J. Maranville, Management, Marketing and Business Administration

Award for Excellence in Service

1982	Shannon Doyle, Social Sciences
1982	Hakumat Israni, Engineering Technology
1983	Gail S.M. Evans, Business Management and Administrative Services
1983	James David Fairbanks, Social Sciences
1984	R. Bowen Loftin, Natural Sciences
1984	Herbert F. Rebhun, Finance, Accounting and Computer Information Systems
1985	R. Bowen Loftin, Natural Sciences
1986	William E. Brigman, Social Sciences
1987	Molly R. Woods, Business Management and Administrative Services
1988	Thomas Lyttle, Arts and Humanities
1989	Ruth Sherman, Natural Sciences
1990	Robert Rhea, Engineering Technology
1991	Dan Jones, English
1992	Shohreh Hashemi, Finance, Accounting and Computer Information Systems
1993	Madeline Johnson, Business Management and Administrative Services
1994	Herbert Rebhun, Finance, Accounting and Computer Information Systems
1995	Carl Ruthstrom, Business Management and Administrative Services
1996	Margaret Shelton, Finance, Accounting and Computer Information Services
1997	Jeff Flosi, Natural Sciences
1998	Linda Vaden-Goad, Social Sciences
1999	Peter Hoffmann-Pinther, Natural Sciences
2000	Anjoo Sikka, Urban Education
2001	Elias Deeba, Computer and Mathematical Sciences
2002	Anisul Islam, Finance, Accounting and Computer Information Systems
	John Leavins, Finance, Accounting and Computer Information Systems

Award for Excellence in Scholarly and Professional Activity

- 1989 Elias Deeba, Computer and Mathematical Sciences
- 1989 Robert Fisher, Social Sciences
- 1990 André de Korvin, Computer and Mathematical Sciences
- 1991 Glen Merrill, Natural Sciences
- 1992 André de Korvin, Computer and Mathematical Sciences
- 1993 Lorenzo Thomas, English
- 1994 Kathleen Haney, Social Sciences
- 1995 Elias Deeba, Computer and Mathematical Sciences
Orapin Duangploy, Finance, Accounting and
Computer Information Systems
- 1996 Thomas Lyttle, Arts and Humanities
- 1997 Margaret Shipley, Business Management and
Administrative Services
- 1998 Anisul Islam, Finance, Accounting and Computer
Information Systems
- 1999 André de Korvin, Computer and Mathematical
Science
Chenyi Hu, Computer and Mathematical Sciences
- 2000 James McCaffrey, Social Sciences
Khursheed Omer, Finance, Accounting and Computer
Information Systems
- 2001 Lorenzo Thomas, English
- 2002 Orapin Duangploy, Finance, Accounting and
Computer Information Systems

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- major in industrial chemistry, 72
- major in interdisciplinary studies, 39
- major in mathematics, *see* applied math
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- major in political science, 46
- major in professional writing, 44
- major in psychology, 47
- major in social sciences, 49
- bachelor of science degree in engineering technology, 64
 - major in control and instrumentation electronics, 65
 - major in process and piping design, 66
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