THE UNIVERSITY OF TEXAS AT EL PASO

UNDERGRADUATE CATALOG

2000 - 2002

GENERAL INFORMATION

GENERAL INFORMATION

University History

The University of Texas at El Paso (UTEP) has created a foundation of academic excellence as strong as the rugged Rocky Mountain foothills that are the University's home.

Located on the U.S.-Mexico border in the world's largest binational metropolitan area of more than two million people, UTEP is the largest Mexican-American-majority university in the United States. In this unique multicultural setting, the University offers a wide scope of academic programs and outstanding support services, providing academic excellence through opportunity for students of the Southwest.

UTEP, the second oldest academic component of The University of Texas System, was founded by the Texas legislature in 1913 as the Texas State School of Mines and Metallurgy to train professionals in the mining industry.

From its inception, the campus has featured architecture derived from the style of buildings in the Himalayan kingdom of Bhutan. UTEP's unique buildings are the only examples of this ancient architecture in the Western Hemisphere. The motif, characterized by thick, sloped outer walls accented with a band of elaborate brickwork, was inspired by Kathleen Worrell, the wife of the college's first dean, after seeing photographs of Bhutanese monasteries in an issue of *National Geographic*. Noted El Paso architect Henry Trost designed the first buildings and architects have continued the theme through more than 80 years of campus expansion.

The college's curriculum expanded in 1927 with the addition of liberal arts courses. The first master of arts degree was established in 1940. The institution was renamed Texas Western College in 1949 and the University of Texas at El Paso in 1967, boasting a student population of more than 9,000.

Since then, enrollment has grown and the scope of programs has expanded to include 64 bachelor's, 57 master's, and eight doctoral degrees to meet the needs of an increasingly industrialized West Texas region. The 367-acre UTEP campus consists of 84 buildings, including the 52,000-seat Sun Bowl Stadium, the 12,200-seat Don Haskins Center, a Modern fine arts complex with galleries and recital halls, and a museum of natural and cultural history. A new 125,000 square-foot Undergraduate Learning Center features multimedia-enriched computer and distance learning technology.

With its pivotal setting on the U.S.-Mexico border, UTEP is a nationally recognized leader for creating excellent academic opportunities for a largely first-generation student population. Quality academic programs and a robust research agenda mark UTEP as an innovative force in American higher education for the 21st century.

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Vision

The University of Texas at El Paso commits itself to providing quality higher education to a diverse student population. The University aims to extend the greatest possible educational access to a region which has been geographically isolated with limited economic and educational opportunities for many of its people. UTEP will ensure that all of its graduates obtain the best education possible, one which is equal, and, in some respects, superior to that of other institutions so that UTEP's graduates will be competitive in the global market place. UTEP also envisions using its binational location to create and maintain multicultural, inter-American educational and research collaborations among students, faculty, institutions, and industries, especially in northern Mexico.

Through the accomplishment of its mission and goals via continuous improvement, UTEP aspires to be a model of educational leadership in a changing economic, technological, and social environment. The UTEP community – faculty, students, staff, and administrators – commits itself to the two ideals of excellence and access. In addition, it accepts a strict standard of accountability for UTEP's institutional effectiveness as the University educates students who will be the leaders of the 21st Century.

GENERAL INFORMATION

Mission

The University of Texas at El Paso is dedicated to teaching and to the creation, interpretation, application, and dissemination of knowledge. UTEP prepares its students to meet lifelong intellectual, ethical, and career challenges through quality educational programs, excellence in research and in scholarly and artistic production, and innovative student programs and services, which are created by responsive faculty, students, staff, and administrators.

As a component of The University of Texas System, UTEP accepts as its mandate the provision of higher education to the residents of El Paso and the surrounding region. Because of the international and multicultural characteristics of this region, the University provides its students and faculty with distinctive opportunities for learning, teaching, research, artistic endeavors, cultural experiences, and service.

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UTEP Goals

Goal 1 - Learning and Teaching

Prepare UTEP students to meet lifelong intellectual, ethical, and career challenges and to be the leaders of the 21st Century.
Student Achievement: Ensure that baccalaureate and advanced degree graduates have achieved the knowledge and skills of their academic majors or professions.
Curriculum: Maintain and improve a core curriculum and the majors/professions curricula which provide students with the knowledge, attitudes, and skills to be productive citizens and to meet future intellectual, ethical, and career challenges.
Educational Programs: Provide a wide array of quality academic programs and develop new graduate degree programs appropriate to a comprehensive university and the educational requirements of El Paso's binational metropolitan area.
Faculty: Recruit, orient, support, and retain a highly qualified, diverse faculty that is dedicated to teaching and that uses effective instructional practices and technological innovations for the enhancement of student learning.
Student Services: Provide comprehensive programs and services that strengthen UTEP students' academic achievement and develop their leadership skills.
Pre-College Preparation of Students: Work collaboratively with schools, the community, and employers to ensure that young people and their families are informed about the necessity of higher levels of academic preparation for admission to and success at UTEP.
Student Recruitment: Inform and assist qualified potential students in seeking admission to UTEP to fulfill their aspirations for higher education.

Goal 2 - Research, Scholarship, and Artistic Production

Create, interpret, evaluate, apply, and disseminate knowledge; encourage the addition of perspectives based on UTEP's geographic and social setting; and contribute to the formation of a broader intellectual and artistic foundation for the 21st Century.
Generation and Application of Knowledge: To advance knowledge through research, scholarship, and artistic production.
Application of Knowledge: Develop research, scholarship, and artistic productions which apply UTEP's expertise and resources to the search for solutions to regional, national, and international problems.
Integration of Research, Scholarship, and Artistic Production Activities with Teaching: Expand the linkages between instruction with research, scholarship, and artistic activities, whenever appropriate and expand opportunities for both graduate and undergraduate students to participate in these endeavors.
Faculty: Recruit, orient, support, and retain a highly qualified, diverse faculty dedicated to the advancement, dissemination, and application of knowledge.

Goal 3 - Public Service

Work in partnership with public and private agencies, institutions and organizations, including business and industry, to improve the quality of life in our region and world by providing appropriate university expertise and leadership.
Community Education: Encourage lifelong learning and provide educational courses and activities in response to local and regional needs.
Preparation of Professionals in Critical Areas: Educate and prepare for the licensure and certification of critically needed professionals, such as teachers and providers of health care and human services.
Economic Development Analysis and Technical Assistance: Provide needs assessment services, data collection and analyses, training, and technical assistance supportive of regional economic development.
Culture: Provide cultural activities consistent with the goals of the University and work collaboratively with other groups in the support of regional cultural activities.
Recreation: Provide recreational activities consistent with the goals of the University and work collaboratively with other groups in the support of regional recreational activities.
Athletics: Provide intercollegiate athletic activities consistent with the goals of the University and work collaboratively with other groups in the support of regional athletic activities.

Goal 4 - Administration

Support the achievement of UTEP's mission in learning, teaching, research, scholarship, artistic production, and public service through responsive, effective, and efficient administrative and staff services.
Strategic Planning: Contribute to the achievement of UTEP's mission and goals through the University's planning, institutional research and evaluation system.
Financial and Material Resources: Plan, manage, and supervise the physical facilities and grounds, materials management, purchasing and campus security in order to provide the necessary support services conducive to learning, teaching, research, artistic production, and public service.
Institutional Development: Substantially increase UTEP's endowed funding, solidify stewardship relations, and broaden UTEP's donor base.
Information and Telecommunications Services: Expand and integrate current information and network technology throughout the campus, emphasizing their application to instruction and student learning, and improve information and telecommunication services for essential administrative functions.
Staff: Hire, train, support, and retain well-qualified staff members who work to ensure the achievement of UTEP's mission and goals.

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Degrees and Programs

UTEP's six undergraduate colleges–business administration, education, engineering, health sciences, liberal arts, and science–comprise some 44 academic departments and offer more than 62 baccalaureate degrees. Graduate degrees offered by UTEP include 58 master's degrees in disciplines from all six colleges. Doctoral degrees are offered in Biological Sciences, Computer Engineering, Environmental Science and Engineering, Geological Science, History, Materials Science and Engineering, Psychology, and an Ed.D. degree is offered in Educational Leadership and Administration.

Strengthening its roots in the fields of science and engineering, UTEP added its first doctoral program in geological sciences in 1974 and developed a Ph.D. in computer engineering in 1990. Capitalizing on major grants from the National Science Foundation and other bodies, UTEP has concentrated in recent years on developing state-of-the-art science laboratories, where undergraduate and graduate students participate in research that is relevant to the border region.

The College of Education plays an active role in several local, regional, and national projects to improve teacher education and public school administration, including the graduation of better-prepared science and math teachers.

UTEP also continues to develop its liberal arts and social sciences offerings in response to the needs of the bilingual/bicultural community the University serves. To serve this goal, UTEP has added a Ph.D. program in History that focuses on the U.S./Mexico Borderlands.

The College of Health Sciences and several cooperative programs with other institutions provide the region with a broad spectrum of degree opportunities in Clinical Laboratory Sciences, Family Nurse Practice, Health Sciences, Kinesiology, Nursing, Occupational Therapy, Pharmacy, Physical Therapy, Public Health, and Speech-Language Pathology.

With programs accredited by AACSB - the International Association for Management Education, the College of Business Administration plays a dynamic role in preparing UTEP students to compete in a global economy.

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Student Body

Students who attend UTEP come from a varied mix of social, cultural, and economic backgrounds that closely mirror the population of the El Paso/Ciudad Juarez region. Approximately two-thirds of UTEP's students are Hispanic, more than 70 percent work while in college, and about half are first-generation college students. UTEP students typically represent more than 40 states and 70 countries, with about 9 percent coming from Mexico.

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Accreditation

The University of Texas at El Paso is accredited by The Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia 30033-4097/ Telephone number: 404-679-4500) to award bachelor's, master's, and doctoral degrees.

Information concerning accreditation by separate accrediting bodies for specific programs is shown in the related college section of this catalog.

GENERAL INFORMATION

Board of Regents

OFFICERS

DONALD L. EVANS, Chairman
TOM LOEFFLER, Vice-Chairman
RITA CROCKER CLEMENTS, Vice-Chairman
FRANCIE A. FREDERICK, Executive Secretary

MEMBERS

Terms Expire February 1, 2001:
RITA CROCKER CLEMENTS, Dallas
DONALD L. EVANS, Midland
TOM LOEFFLER, San Antonio

Terms Expire February 1, 2003:
PATRICK C. OXFORD, Houston
A.W. "DUB" RITER, JR., Tyler
A. R. (TONY) SANCHEZ, JR., Laredo

Terms Expire February 1, 2005:
W.L. (WOODY) HUNT, El Paso
CHARLES MILLER, Houston
RAUL R. ROMERO, Houston

OFFICE OF THE CHANCELLOR

WILLIAM H. CUNNINGHAM, Chancellor
DR. EDWIN R. SHARPE, Executive Vice-Chancellor for Academic Affairs
CHARLES B. MULLINS, M.D., Executive Vice-Chancellor for Health Affairs
R. D. (DAN) BURCK, Executive Vice-Chancellor for Business Affairs

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Administrative Officers

DIANA S. NATALICIO, President, 1971
B.S., St. Louis University; M.A., Ph.D., The University of Texas at Austin

STEPHEN RITER, P.E., Provost and Vice President for Academic Affairs, 1980
B.A., B.S.E.E., Rice University; M.S., Ph.D., University of Houston

RICHARD PADILLA, Vice President for Student Affairs, 1994
B.A., Bellarmine College; M.Div., Catholic Theological Union; Ed.D., University of Houston

JUAN R. SANDOVAL, Vice President for Finance and Administration, 1983
B.A, M.B.A., The University of Texas at El Paso

DAVID L. MADEIRA, Vice President for Institutional Advancement, 1999
B.S., University of Illinois; M.A., University of Indiana; J.D., Indiana University School of Law

PAUL MAXWELL, Vice President for Research and Sponsored Projects, 1999
B.S., The University of Texas at El Paso; M.S., Ph.D., Stanford University

CHARLES H. AMBLER, Associate Vice President for Graduate Studies, 1984
B.A., Middlebury College; M.A., Ph.D., Yale University

MAGGY SMITH, Associate Vice President for Undergraduate Studies, 1987
B.A., M.A., State University of New York, Fredonia; Ph.D., Rensselaer Polytechnic Institute

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THOMAS BRADY, Dean, The College of Science, 1997
B.A., Beloit College; M.A., Ph.D., Yale University

PATRICIA T. CASTIGLIA, R.N., Dean, The College of Health Sciences, 1990
B.S., University of Buffalo; M.S., Ph.D., State University of New York at Buffalo

HOWARD C. DAUDISTEL, Dean, The College of Liberal Arts, 1974
B.A., M.A., Ph.D., University of California at Santa Barbara

FRANK HOY, Dean, The College of Business Administration, 1991
B.B.A., The University of Texas at El Paso; M.B.A., University of North Texas; Ph.D., Texas A&M University

ARTURO PACHECO, Dean, The College of Education, 1991
A.A., San Jose College; B.A., San Jose State University; M.A., San Francisco State University; Ph.D., Stanford University

ANDREW H. P. SWIFT, JR., Dean, The College of Engineering, 1983
B.S., B.S.M.E., Union College; M.S., Sc.D., Washington University

WILLIAM SCHAFER, Dean of Students, 1998
B.S., M.A., Ph.D., University of Colorado at Boulder

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Listed below is the tentative 2000-2002 Calendar. For further information on specific dates, refer to the term's Class Schedule, or contact the Office of the Registrar at 747-5544 or 747-5550, or access our Web site at www.utep.edu/register.

	Fall 2000	Fall 2001
Undergraduate admission application priority due date ($15.00 late fee begins)	May 1	May 1
Undergraduate admission date for international applicants (all documents due)	May 1	May 1
Telephone Registration (TTR)	June - July	June - July
Undergraduate admission document due date	July 31	July 31
Late Registration and schedule adjustment prior to classes	August 24, 25	August 23, 24
Classes begin	August 28 (Mon)	August 27 (Mon)
Late Registration and schedule adjustment - continued	August 28 - Sept. 1	August 27 - 31
Last day of class	Dec. 7 (Thur)	Dec. 6 (Thur)
Last day of Final Examinations	Dec. 15	Dec. 14

	Spring 2001	Spring 2002
Undergraduate admission application priority due date ($15.00 late fee begins)	Oct. 1	Oct. 1
Undergraduate admission date for international applicants	Oct. 1	Oct. 1
Telephone Registration (TTR)	Oct.-Nov. '00	Oct.-Nov.'01
Undergraduate admissions document due date	Nov. 30	Nov. 30
Late Registration and schedule adjustment prior to classes	Jan. 11-12	Jan. 10-11
Classes begin	Jan. 16 (Tues)	Jan. 14 (Mon)
Late Registration and schedule adjustment - continued	Jan. 16 - 23	Jan. 14 - 18
Last day of class	May 3 (Thur)	May 2 (Thur)
Last day of Final Examinations	May 11	May 10

	Summer 2000	Summer 2002
Undergraduate admission application priority due date ($15.00 late fee begins)	March 1	March 1
Undergraduate admission date for international applicants (all documents due)	March 1	March 1
Telephone Registration (TTR)	April	April
Undergraduate admission document due date	April 30	April 30
Late Registration and schedule adjustment prior to classes	May 31- June 1	May 30, 31
Classes begin	June 4 (Mon)	June 3 (Mon)
Late Registration and schedule adjustment - continued	June 4 - 6	June 3 - 5
Last day of class	July 25 (Wed)	July 24 (Wed)
Last day of Final Examinations	July 27	July 26

GENERAL INFORMATION

Endowments, Trusts & Memorial Funds

The University of Texas at El Paso is indebted to the generosity of private citizens for many fine endowments, trusts, and memorial funds. These permanent funds, invested under trusteeship of the Regents of The University of Texas System or held by other trustees, provide scholarships, purchase library books, underwrite important research, and in many ways enrich the educational experience. The University makes grateful acknowledgment for the following permanent funds:

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ADMISSION

ADMISSION

Undergraduate Admission Office Web Site :

http://www.utep.edu/admit

General Information

The University of Texas at El Paso is pleased to offer admission to any individual who meets the University's admission requirements. The University offers a comprehensive array of programs in both liberal arts and professional areas, from the baccalaureate to the doctoral level. For more information, visit our Web site at www.utep.edu.

The **Office of Undergraduate Recruitment** assists prospective students with enrollment to the University by informing them of admission procedures and financial resources, and by providing general university information. New students and their parents desiring pre-enrollment counseling, information, or a campus tour are invited to contact:

The University of Texas at El Paso
Office of Undergraduate Recruitment
El Paso, TX 79968-0504
(915) 747-5890
E-mail: recruit@utep.edu

The **Admissions Office** is responsible for determining an applicant's eligibility for admission and the evaluation of transfer credit according to standards set by Texas law, the Board of Regents of The University of Texas System, and the UTEP faculty. For further information about admission to the University or about the evaluation of transfer credit, contact:

The University of Texas at El Paso
Admissions Office
104 Academic Services Building
El Paso, TX 79968-0510
(915) 747-5576
E-mail: admission@utep.edu

Admission applications are available at either of the above offices, in the counseling offices of most El Paso area high schools, and on our Web site at www.utep.edu. Applicants may also use the Texas Common Application, available at www.applytexas.org.

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Undergraduate Admission Requirements

Admission Dates and Fees

Applications for admission are due by the following dates:

Semester	Priority Date	Documents Due
Fall	**May 1**	**July 31**
Spring	**October 1**	**November 30**
Summer	**March 1**	**April 30**

Late applications will be considered after the Priority Date if the student:

1. submits all documents required to make the admission decision prior to the Document Due Date, and
2. submits a non-refundable $15 late application fee made payable to The University of Texas at El Paso.

An admission file that becomes complete after the Document Due Date will be considered for admission to the next semester.

International Admission Dates and Fees

Applications from international students must be accompanied by a non-refundable $65 check or money order (U.S. dollars) made payable to The University of Texas at El Paso.

All international student admission documents must be received by the International Document Due Date:

Semester	Document Due Date
Fall	**May 1**
Spring	**October 1**
Summer	**March 1**

An admission file that becomes complete after the International Document Due Date will be considered for admission to the next semester.

Admission Policies and Procedures

The admission requirements that must be met are determined by an individual's academic preparation. The file of an applicant whose academic background does not fall into one of the categories below will be carefully reviewed by the Admissions Office, and the applicant will be notified of the appropriate documents required.

Admission to the University does not assure admission into any of the professional colleges (Business Administration, Education, Engineering, or Health Sciences) or into any program with secondary admission requirements.

All admission documents must be submitted directly to the Admissions Office. Official transcripts should be sent directly from the schools involved, and official test scores should be sent directly from the appropriate testing agency. All transcripts in languages other than English or Spanish must be accompanied by a certified English translation.

All documents submitted to the University become part of the official files of the University and cannot be released or returned to the student or another institution.

High School Preparation

The University strongly encourages students to take high school courses that will give them the academic preparation necessary to pursue a baccalaureate degree. The high school curriculum listed below constitutes the current minimum recommended preparation for university-level work.

SUBJECT	CREDITS
English	4
Mathematics	3 - 4
(Algebra I II and Geometry) (plus 1 year of Precalculus, Trigonometry, Analytic Geometry, or Elementary Analysis for Science and Engineering majors)	
Natural Science	3
(Physical Science, Biology I & II, Chemistry I & II, Physics I II, or Science 3 4)	

Social Studies	4
(1 year each of U.S. History, World History, and World Geography, ½ year each of Economics and U.S. Government)	
Foreign Language	3
3 years of the same language	
Health	0.5
Fine Arts	1
P.E.	1.5
Computer Science	1

Using one year of high school study to equal one credit, the recommended list requires 21 or 22 credits. For students who have graduated from U.S. high schools within the past five years, the course work listed above will be required for admission to the University beginning with the summer session of 2004. For admission beginning the summer of 2000, students must have completed a minimum of 16-1/2 of the credits above, including 4 in English. Students in science and engineering need an additional credit, preferably in mathematics. Students admitted for the summer session of 2002 must have completed a minimum of 18-1/2 of the credits above, including 4 in English. Students in science and engineering need an additional credit, preferably in mathematics.

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http://www.utep.edu/admit

Freshman and Transfer Admission

The following sections on freshman and transfer admission apply to citizens and permanent residents of the United States. International students should refer to the section on **INTERNATIONAL STUDENT ADMISSION** for their admission requirements.

Freshmen Admission
First-time freshmen applicants may qualify for automatic admission, may be subject to review, or, in certain cases, may qualify for provisional admission.

Documents Required: Application; official SAT, ACT, GED, TOEFL, or PAA scores, as appropriate; final, official high school transcript indicating adequate high school preparation, rank, and graduation date.

The University welcomes applications from individuals who are graduates of accredited high schools or their equivalents and who have the academic preparation necessary to pursue a baccalaureate degree. Admission of students who have never attended another college or university is based on high school academic preparation, final high school rank, and Scholastic Assessment Test (SAT), American College Test (ACT), Test of General Educational Development (GED), Test of English as a Foreign Language (TOEFL), or Prueba de Aptitud Academica (PAA) scores. For early notification of acceptance, an applicant should have verification of test scores, expected date of graduation, and a transcript sent directly from the high school to the Admissions Office. After graduation, a final, official transcript must be submitted.

Categories of Freshman Admission

Category I: Freshmen who rank in the top half of their class or who score a minimum of 920 on the SAT or a 20 composite on the ACT are automatically admitted to UTEP upon application and submission of the appropriate admission documents. This policy includes admission of graduates of an accredited Texas high school who graduated in the top 25% of their high school class, as described in Chapter 51 of the Texas Education Code.

Category II: Freshman applicants who are residents of Texas and who do not qualify under Category I are eligible for participation in the START Program described below.

Category III: Freshmen applicants who do not meet the requirements in Category I or II are subject to individual review, as outlined in the section below on REVIEWED ADMISSIONS.

Freshmen START Program
Residents of Texas who do not meet the requirements for Category I admission are eligible for provisional admission through the University's START Program. START students must attend Orientation, must be advised by the Academic Advising Center, must select their classes from a list of prescribed university courses, and must take a free, non-credit study skills course.

During the first semester at UTEP, a START student must complete at least 9 semester hours with a minimum grade of C in each course selected from at least two of the following areas: English, Mathematics, Natural Science, Foreign Language, or Liberal Arts (Anthropology, Art, Communication, History, Music, Psychology, Sociology, or Theatre Arts). A minimum cumulative grade point average of 2.0 must also be maintained. Once these requirements have been met, the student becomes fully admitted to the University and may change majors.

If the student does not clear provisional admission during the first semester but has at least a 1.5 overall GPA, an additional START semester will be allowed to clear the conditions of admission.

Students who do not satisfy the conditions of their provisional admission have two options if they wish to re-enroll at UTEP:

1. apply for readmission and reinstatement by the Dean of Liberal Arts after at least 2 calendar years have elapsed since the end of the last period of attendance, or
2. apply for readmission after attending another college or university where a minimum of 12 semester hours of college-level work with grades of "C" or better in each course were earned while a minimum cumulative 2.0 GPA was maintained.

Under extenuating circumstances, an ineligible START student may petition for reinstatement through the Academic Advising Center.

Freshman Testing Requirements
Graduates of U.S. High Schools: All first-time freshmen who graduated from high school within the past five years are required to take the SAT or ACT for admission.

Graduates of High Schools Outside the U.S.: Graduates of high schools outside the United States must demonstrate an adequate proficiency in English that will enable them to pursue university-level work successfully.

The SAT or ACT must be taken by applicants whose high school education was in English. An SAT total of 920 or higher, with a minimum of 400 on the Verbal, is required. Students taking the ACT must score 20 or higher on the Composite, with a minimum of 21 on the English section.

The TOEFL must be taken by applicants whose high school education was not in English; a minimum score of 500 is required.

The PAA should be taken by applicants whose high school education was in Spanish and who are not proficient enough in English to take the TOEFL; a minimum score of 1,000 is required. Applicants admitted on the basis of PAA scores enroll as Inter-American Science and Humanities Program majors and are limited to regular university courses taught in Spanish and to ESOL (English for Speakers of Other Languages) courses. Once ESOL 5110 has been completed with a grade of "C" or better, the student may change majors.

High School Graduation More than Five Years Ago: Freshmen who graduated from U.S. high schools over five years ago are not required to take an admissions test. TOEFL scores of 500 or higher or PAA scores of 1,000 or higher may be required of applicants whose high school education was in a language other than English.

High School Equivalency Examination (GED): Applicants who received a high school equivalency certificate are eligible for admission if they have an average standard score of 45 or higher on the GED. A minimum SAT score of 920 or a minimum ACT score of 20 is required of applicants whose high school class would have graduated within the past 5 years and who pass the English version of the GED. All applicants passing the Spanish version of the GED must submit scores of 1,000 or higher on the PAA. Applicants who meet the Spanish GED and PAA requirements are admitted into the bilingual Inter-American Science and Humanities Program.

Transfer Admission
Documents Required: Application; complete, official transcript from EACH college or university attended.

The University welcomes applications from qualified individuals who have begun their college work at other accredited institutions of higher education.

Categories of Transfer Admission

Category I: Applicants who have completed a minimum of 12 semester hours of college-level work with grades of "C" or better with a minimum overall 2.0 ("C") grade point average are automatically admitted to UTEP.

Category II: Applicants who do not meet the transfer hour and grade point average requirement but who meet the Freshman Category I requirements for admission are automatically admitted to UTEP as long as they are eligible to immediately re-enroll at their previous institutions.

Category III: Transfer applicants who do not meet the requirements in Category I or II are subject to individual review, as outlined in the section below on **REVIEWED ADMISSIONS**.

Transfer applicants must indicate all institutions attended on the admission application and must submit a complete, official transcript from EACH school attended, regardless of the amount of work completed or the intent to have the credit transferred. Credit earned at institutions not declared on the admissions application cannot be used toward a degree at UTEP. Failure to provide complete information will be considered grounds for denial of admission, denial of transfer credit, cancellation of registration, or appropriate disciplinary action.

The University honors suspension periods imposed by other colleges and universities. An applicant who is ineligible to return to any school previously attended because of suspension or dismissal or whose official records will not be released is not eligible for admission to UTEP until eligible for readmission to the previous institutions or until the official documents have been released. Information regarding the transferability of credit can be found in the **ACADEMIC REGULATIONS** section of this catalog under "Transfer Credit". Students who have questions concerning UTEP's evaluation of transfer credit should refer to the "Resolution of Transfer Disputes" in that same section.

Reviewed Admissions
Documents Required: Application; academic documents available; test scores, if applicable; letter of petition, if requested.

Freshmen and transfer applicants who do not meet the requirements for automatic admission, for admission into the START Program or whose individual circumstances are highly unusual with respect to their academic credentials will be reviewed on an individual basis. This review gives primary consideration to the applicant's high school and college record, with regard to the types of courses taken and the grades earned in specific courses. Performance on standardized tests is also considered. Applicants may submit additional material for consideration in evaluating their potential for success at UTEP. Such material can document, for example, the applicant's work experiences and achievements, extracurricular and community activities, strengths and talents that might not be apparent from the academic record, and experiences in surmounting obstacles to their further pursuit of higher education. Letters of recommendation from high school teachers, counselors, supervisors, and activity leaders are also appropriate.

The decision resulting from the individual review of each application will be one of the following:

1. to approve admission without condition, or
2. to approve conditional admission, which requires students to take preliminary or concurrent course work to strengthen their academic foundation in preparation for the regular UTEP curriculum, or
3. to deny admission.

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Undergraduate Admission Office Web Site :

http://www.utep.edu/admit

International Student Admission

The University welcomes applications from qualified international students whose academic backgrounds indicate a high probability for successful completion of the desired UTEP academic program. The high school preparation or its equivalent that would qualify the applicant for admission to recognized universities in the home country must be completed.

The University must receive complete, official, or school-certified transcripts of high school and university work sent directly from each institution involved. If the original documents are in the student's possession, copies certified by the school, college, university, or consulate may initially be submitted and the originals presented to the Admissions Office when the student arrives on campus. All transcripts in languages other than English or Spanish must be accompanied by certified English translations.

A transfer applicant attending another institution on a student visa (I-20) will be considered for admission to UTEP if the requirements for transfer admission have been met and if the applicant has completed a minimum of 12 semester hours or its equivalent each long semester while in the United States. Failure to maintain this student status will result in denial of admission to UTEP.

Financial assistance for international students is extremely limited. Each student must furnish a statement of financial support from parents or sponsors stating that they are able to finance the student's education while in this country; this must be done before the student can be admitted.

The admission credentials of all international students will be evaluated on the basis of the admission requirements described below. International students who have attended other colleges or universities should also refer to the **ACADEMIC REGULATIONS** section of this catalog under "Transfer Credit" for additional information about the transferability of credit.

International Freshman Admission
Documents Required: Application, accompanied by $65 admission evaluation fee; satisfactory SAT, ACT, PAA, or TOEFL scores; complete, official high school transcript; acceptable statement of financial support; immunization record.

A high school graduate whose academic credentials would grant admission to recognized universities in the home country will be considered for admission to the University. The academic average in areas related to the desired field of study should be equivalent to a 3.0 on a 4.0 scale.

International Transfer Admission
Documents Required: Application, accompanied by $65 admission evaluation fee; satisfactory SAT/ACT, TOEFL, or PAA scores; complete, official high school transcript; complete, official transcripts from EACH college or university attended; acceptable statement of financial support; immunization record.

An applicant from an accredited or nationally recognized college or university who has a minimum overall grade point average of 2.0 or its equivalent and who is eligible to return to all previous institutions attended will be considered for admission to the University.

International Student Test Score Requirements
All international students who have not earned a baccalaureate degree from a college or university in the United States must submit entrance examination scores. The SAT or ACT must be taken by applicants whose high school education was in English. An SAT total of 920 or higher, with a minimum of 400 on the Verbal, is required. Students taking the ACT must score a minimum of 20 on the Composite with a minimum of 21 on the English section. The TOEFL may be submitted by applicants whose high school education was in English but for whom the SAT or ACT is unavailable in the home country. The TOEFL (Test of English as a Foreign Language) must be taken by applicants whose high school education was not in English; a minimum score of 500 is required. The PAA (Prueba de Aptitud Academica) should be taken by applicants whose primary language is Spanish and who are not proficient enough in English to pass the TOEFL; a total score of 1,000 is required. Applicants accepted with PAA scores are admitted into the bilingual Inter-American Science and Humanities Program. Students admitted into the program are limited to regular university courses taught in Spanish and to ESOL (English for Speakers of Other Languages) courses. Once ESOL 1510 has been completed with a grade of "C" or better, the student may change majors. Applicants who have successfully completed the University's English Language Institute meet the language proficiency requirement for regular admission. Students whose academic background is unusual or is not described above should contact the Admissions Office to determine which test is most appropriate.

ADMISSION

Undergraduate Admission Office Web Site :

http://www.utep.edu/admit

Readmission

Documents Required: Application; complete, official college transcripts from all institutions attended since last UTEP enrollment.

Former UTEP students who last attended the University prior to January 1, 1984, must submit an application for readmission. Junior Scholars who have graduated from high school and who wish to continue at UTEP as regular students should contact the Admissions Office to have their admission files reviewed and reactivated. Students who have attended other colleges or universities since last attending UTEP must submit official transcripts of that work so it can be evaluated and added to the UTEP academic record.

ADMISSION

Undergraduate Admission Office Web Site :

http://www.utep.edu/admit

Junior Scholars Program

The Junior Scholars Program is a cooperative effort between The University of Texas at El Paso and El Paso area public and private schools that allows qualified students to enroll in regular university courses while attending high school. Hours earned in this way will count as university credit and some courses may also be approved to apply toward high school graduation requirements. Persons interested in this program should contact:

The University of Texas at El Paso
Junior Scholars Program
Honors House
El Paso, TX 79968-0607
(915) 747-5858

ADMISSION

Undergraduate Admission Office Web Site :

http://www.utep.edu/admit

Academic Fresh Start Program

(Texas Education Code, Section 51.931)

An applicant for undergraduate admission who is a Texas resident may elect to enter this institution pursuant to the Academic Fresh Start statute, *Texas Education Code*, §51.931. When the applicant informs the admissions office in writing of the election, the institution will not consider in the admissions decision any academic course credits or grades earned by the applicant 10 or more years prior to the starting date of the semester in which the applicant seeks to enroll. An applicant who elects to apply under this statute may not receive any course credit for courses taken 10 or more years prior to enrollment under the Academic Fresh Start statute.

The courses excluded for Academic Fresh Start purposes may not be counted toward a degree, may not be counted in the cumulative GPA calculation, may not be used to remove any existing high school deficiencies, and may not be used to meet prerequisite requirements. These courses and grades will remain on the student's official UTEP academic transcript. A notation will be made on the student's academic transcript indicating that portion of the record that is to be involved in computing requirements for graduation.

Students with three or more semester credit hours or the equivalent awarded prior to fall semester, 1989, *are exempt* from the Texas Academic Skills Program regardless of any election pursuant to the Academic Fresh Start statute.

An applicant who has earned a baccalaureate degree under the Academic Fresh Start statute, *Texas Education Code*, §51.931, and applies for admission to a postgraduate or professional program will be evaluated on only the grade point average of the course of work completed for that baccalaureate degree and the other criteria stated herein for admission to the postgraduate or professional program. The Academic Fresh Start Acknowledgement must be returned to the Admissions Office or Graduate School before the Document Due Date of the semester for which the student is applying.

ADMISSION

Undergraduate Admission Office Web Site :

http://www.utep.edu/admit

Texas Academic Skills Program (TASP)

For information about the TASP, refer to the **Academic Regulations** section in this catalog.

FINANCIAL INFORMATION

FINANCIAL INFORMATION

Financial Aid

Web site at: www.utep.edu/faidschl

FINANCIAL INFORMATION

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Undergraduate Scholarships

Web site at: www.utep.edu/faidschl

UNDERGRADUATE SCHOLARSHIPS

The University of Texas at El Paso has an excellent scholarship program designed to attract and retain bright scholars to the University. These competitive scholarships are awarded for academic merit and are intended to recognize students for their outstanding academic accomplishments and future potential. Academic scholarships are offered for qualified freshmen, college transfers, and currently enrolled undergraduate and graduate UTEP students. The awards are made possible through the generosity of foundations, corporations, community groups, and philanthropic individuals. Scholarship requirements vary with the amount and type of award and are made to the most competitive applicants.

Scholarship Requirements
High school students are considered for an award on the basis of their high school cumulative grade average, class rank, SAT and/or ACT scores and, to a lesser degree, extracurricular achievements. Attending, transfer, and graduate students are based on 3.0 cumulative grade point average and full-time enrollment. Undergraduate students must submit a brief narrative description of a minimum of 250 words stating their educational goals and objectives. All freshmen and transfer students must also submit an academic transcript with their scholarship application. A large number of scholarships require students to demonstrate financial need as determined by completing the Federal Financial Aid Form.

Priority Deadlines
Complete applications must be received by the Office of Scholarships by the dates below:

November 1	Presidential Excellence and Presidential Awards (incoming freshmen only)
March 1	All other programs

Late applications are accepted and kept on file. They are considered on the basis of available funds in all categories awarded. A non-awarded or late scholarship application is kept on file as long as the applicant enrolls full-time each Fall and Spring semester and maintains a minimum 3.0 cumulative GPA.

General Scholarships
Many of the general scholarships have specific requirements such as classification, financial need, major, or Texas residency. A student normally receives one academic scholarship; however, a student may also be eligible for outside scholarships, service awards, and/or research awards and may also be eligible for aid from state and federal need-based programs.

Types of Scholarships
Presidential Scholar Programs: (These awards are reserved for incoming freshmen)

Recipients of this scholarship will be selected by the Scholarship Committee from a pool of eligible students.

Presidential Excellence are $12,000 awards over a four-year period ($3,000 per year)
Students must meet at least two of the first three requirements which are

- High school grade point average of 96
- Top 3% of high school graduating class
- 1220+ SAT or 27+ ACT test scores
- Evidence of exceptional leadership abilities and achievements

Renewal requirements:

- 3.25 grade point average the first year
- 3.5 grade point average each year thereafter
- Completion of at least 30 credit hours during the Fall and Spring semesters

Presidential scholarships are $8,000 awards over a four-year period ($2,000 per year)

Students must meet two of three requirements which are

- High school grade point average of 96
- Top 3% of high school graduating class
- 1220+ SAT or 27+ ACT test scores

Renewal requirements:

- 3.25 grade point average the first year
- 3.5 grade point average each year thereafter
- Completion of at least 30 credit hours during the Fall and Spring semesters

UTEP Academic Scholarships are $4,000 awards over a four-year period ($1,000 per year)

Initial requirements are as follows:

- High school grade point average of 93
- Top 5% of high school graduating class
- 1140+ SAT or 25+ ACT test scores

Renewal requirements:

- 3.0 grade point average the first year
- 3.2 grade point average each year thereafter and completion of 30 credit hours during the Fall and Spring semesters

University Endowed, Guaranteed, or other are $3,000 awards over a four-year period

Initial requirements are as follows:

- High school grade point average of 90
- Top 10% of high school graduating class
- 1030+ SAT or 22+ ACT test scores

Renewal requirements:

- 3.0 grade point average and completion of 30 credit hours during Fall and Spring semesters

Renewal Information
Most freshmen scholarships are renewable for a total of eight semesters provided that academic requirements are met. Transfer students and first-time UTEP non-freshmen are awarded for the period specified on the award letter. Renewal letters are mailed in June after spring grades are posted. Please note that it is the responsibility of the student to know whether or not they have met the requirements.

Service Awards
Scholarships based on participation in a University organization (music groups, athletic teams, etc.) are service awards. To apply for these awards, contact the department involved.

Graduate Scholarship Information
The graduate scholarships are merit-based awards available from the UTEP Graduate School, academic departments, and external sources. An application must be submitted to the Scholarship Office along with required documentation by the posted deadline, which is February 15. Scholarships are generally for the academic year and not automatically renewable; students must reapply each year.

Graduate students are encouraged to access databases that are available through the Internet in order to identify opportunities for scholarships and fellowships.

International Scholarships
Students entering the University as international are encouraged to apply for scholarships. For additional scholarship opportunities, contact the Office of International Programs.

Non-Resident Waivers
A non-resident who receives a competitive scholarship of $1,000 or more per year qualifies to pay resident tuition for each semester in which the scholarship is awarded. To qualify for the waiver, the student must have competed with Texas residents for the scholarship and the award must be administered by the Office of Scholarships.

Appeal Process
A student not meeting necessary scholarship requirements may appeal to the Scholarship Appeals Committee. They may appeal either because they have failed to maintain the appropriate grade point average or will be deficient in credit

hours. A student on a renewable scholarship may also file for an appeal to request an extension for one more semester of scholarship eligibility beyond that originally stipulated in the award letter.

Athletic Aid and Academic Scholarships
There are many scholarships offered in the area of athletics. A student interested in applying should contact the coach of that sport or the athletics director. For information, contact the Department of Intercollegiate Athletics, UTEP, El Paso, TX 79968, (915) 747-5347.

For more information, visit our web site at http://www.utep.edu/schp or for outside scholarship information http://www.fastweb.com

FINANCIAL INFORMATION

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Tuition and Fees

THE UNIVERSITY OF TEXAS AT EL PASO
Summary of Tuition and Fee Charges
2000-2001

Name of Charge	Classification	Residency	Amount	Notes
Tuition:				
	Undergraduates or Graduates in Liberal Arts, or Education	Resident	$74/sch*	Set by Legislature at a rate not to exceed $74 per semester credit hour. Tuition revenue is used to fund general University instructions and operative expenses.
		Non-Resident	$289/sch*	Set by Legislature at a rate not to exceed $289 per semester credit hour.
Graduate in Business, Engineering, Nursing, or Science	Resident	Non-Resident	$102/sch* $309/sch*	Governing board may set a twice statutory rates for undergraduate programs.
Required Fees:				
Student Services Fee	All Students	All Students	$12.50/sch, up to a maximum of $150	A compulsory fee to fund student-related services such as intramural activities, student government, disabled student organizations, career services, cheerleaders, student publications, health services, intercollegiate athletics, others.
Library Fee	All Students	All Students	$2.00/sch	A fee to purchase library materials, to replace, maintain, and acquire new equipment and to provide technical support for personal computers and terminals.
Student Union Fee	All Students	All Students	$30/semester	Fee may be used for finance, construction, operation, and maintenance of a student union building and its programs.
International Education Fee	All Students	All Students	$1/semester	For funding an international education financial fund for University students.
Recreation Fee	All Students	All Students	$12/semester	Fee for financing, constructing, maintaining, and operating new and existing recreational facilities and programs.
Registration Fee	All Students	All Students	$5/semester	To defray the costs associated with technology services for telephone registration.
Technology Fee	All Students	All Students	$7/sch, up to a maximum of $105	An incidental fee that provides for development of campus computers and network facilities for students.
Health Center Fee	All Students	All Students	$12/semester	Fee to provide support and medical services to the student population.
Incidental Fees:				
Variety (see Catalog)	All Students	All Students	Variable	For specific services such as late registration, library fines, add/drop fees, bad check charges, application processing fees, and others as approved by the governing board.
Laboratory Fees:				

Variety (see Catalog)	All Students (depending on courses taken)	All Students	Variable	Mandatory charges for certain laboratory courses; may not be less than $2/semester nor more than $30/semester and must not exceed the cost of actual materials and supplies used by a student.
Supplemental Fees:				
Variety (see Catalog)	All Students (depending on courses taken)	All Students	$10-$50	Charges in addition to regular tuition for certain course-related materials and/or for individual instruction.
Voluntary Fees:				
Variety (see Catalog)	Students desiring the specific service	All Students	Variable	May include such items as parking fees, orientation fees, and installment tuition fees.

*** Effective with the fall semester, 1997, the former general use fee has become part of tuition charges per action of the Texas Legislature. Revised February 15, 2000.**

*** Rates are subject to change.**

THE UNIVERSITY OF TEXAS AT EL PASO
Summary of Tuition and Fee Charges
for 2000 - 2001 Academic Year

Name of Charge	Undergraduate In Business, Educ, LA, & Science 12 SCH	Undergraduate in Engineering, & Nursing12 SCH	Graduate in Educ, & LA 9 SCH	Graduate in Business, Engineering, Nursing & Science 9 SCH
Resident tuition[1**]	888.00	888.00	666.00	918.00
Add: Required Fees[2]				
Student Services Fee	150.00	150.00	12.50	112.50
Library Fee	24.00	24.00	18.00	18.00
Student Union Fee	30.00	30.00	30.00	30.00
Registration Fee	5.00	5.00	5.00	5.00
International Education Fee	1.00	1.00	1.00	1.00
Recreational Fee	12.00	12.00	12.00	12.00
Technology Fee	84.00	84.00	63.00	63.00
Health Center Fee	12.00	12.00	12.00	12.00
Major Fee	0.00	30.00	0.00	0.00
Subtotal-Required Fees	1,206.00	1,236.00	919.50	1,171.50
Add: Average for college and course-related laboratory, incidental, and supplemental fees, and/or optional student services fees	75.00	25.00	75.00	75.00
Total Charges (Tuition plus subtotal-requested fees plus averages for college and course- related fees and and/or optional student services fees)	1,281.00	1,261.00	994.50	1,246.50
AVERAGE COST PER SEMESTER CREDIT HOUR	106.75	105.08	110.5	138.50

[1]Resident undergraduate tuition as established by the Texas Legislature is $74/semester credit hours (SCH); non-residents undergraduate tuition is $289/SCH. For graduate rates, consult the following page and fill in the correct amount. Graduate tuition might be twice the statutory rates for undergraduate students.

[2]Required fees, those charged to all students, may be based on semester credit hours or may be per semester. Descriptions of these fees may be found on the following page or in the University catalog.

[3]Averages are given for course-related, laboratory, incidental, and voluntary fees since changes vary according to users and services chosen. Actual fees are published in the University catalog and in the class schedules.

Note: Although unlikely, changes in tuition and fees charges may occur after the information is first published; updated information may be obtained from the Student Business Services Office at (915) 747-5116.

**** Effective with the fall semester, 1997, the former general use fee has become part of tuition charges per action of the Texas Legislature.**

Revised February 15, 2000.

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- Housing Expenses
- Residency Determination Information

Tuition and Fees

FINANCIAL INFORMATION

Housing Expenses

Residence Hall room rates are as follows:

ROOM ONLY

ONE SEMESTER CONTRACT-(110 days)	
Double Room	$1,107.75
Suite (double occupancy)	1,265.25
Private Room (when available)	1,422.75
Private Suite (when available)	1,580.25
TWO SEMESTER CONTRACT-(220 days)	
Double Room	1,942.50
Suite (double occupancy)	2,257.50
Private Room (when available)	2,572.50
Private Suite (when available)	2,887.50

* A $78.75 per semester rate reduction will be offered to students who pay the entire semester charge for a long session in advance as opposed to the three (3) payments per semester plan.

All housing rates are subject to change by action of the Board of Regents, The University of Texas System. Further information about the UTEP student housing facilities, as well as application forms, can be obtained from:

University Housing System
Kelly Hall #105
The University of Texas at El Paso
El Paso, TX 79968-0534

FINANCIAL INFORMATION

- Financial Aid
- Tuition and Fees
- Housing Expenses
- Residency Determination Information

Residency Determination Information

INTRODUCTION

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The Admissions Office is responsible for determining residence status of students for purposes of tuition. The Office is guided by the Texas Education Code, the Rules and Regulations for Determining Residence Status of the Texas Higher Education Coordinating Board, and University regulations. Under the state statutes and regulations, a student or prospective student is classified as a resident of Texas, non-resident, or a foreign student. A resident is an individual who is either a U.S. citizen, national or Permanent Resident Alien or an alien who has been permitted by Congress to adopt the U.S. as his or her domicile while in the United States and who has otherwise met the state requirements for establishing residency for tuition purposes. A non-resident is a citizen, national or permanent resident of the U.S., or an alien who has been permitted by Congress to adopt the U.S. as his or her domicile while in this country and who has not met the State's requirement for establishing residency for tuition purposes. While these state requirements for establishing residency are complex and should be referred to in each particular circumstance, they generally require a minimum of 12 months residence in Texas prior to enrollment. A foreign student is an alien who is not a permanent resident of the U.S. or has not been permitted by Congress to adopt the U.S. as their domicile. An individual classified as a non-resident or foreign student may qualify, under certain exceptions specified in these rules, for resident tuition rates and other charges while continuing to be classified as a non-resident or a foreign student. Complete information on residency, reclassification, tuition exceptions, and waivers is available in the Admissions Office.

MINORS AND DEPENDENTS

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Residency of a Minor or Dependent is based on one of the following circumstances:

1. The residence of the parent who has custody at the time of enrollment (upon divorce of parents);
2. The residence of the parent who has claimed the dependent for federal income tax purposes both at the time of enrollment and for the tax year preceding enrollment; or
3. The residence of the parent with whom the dependent has resided for the 12 months prior to enrollment.

Custody by Court Order

If the custody of the minor has been granted by court order (e.g., divorce decree, child custody action, guardianship, or adoption proceedings) to some person other than the parent, the residence of that person shall control; provided, however, that such grant of custody was not ordered during or within a year prior to the minor's enrollment in a public institution of higher education and was granted under circumstances indicating that such guardianship was not for the purpose of obtaining status as a resident student.

If the minor is not residing with either parent and there is no court-appointed guardian, the residence of the parent with whom the minor last resided shall be presumed to control. If, however, the minor resided with and has been dependent upon a grandparent for more than a year prior to enrollment in an institution of higher education, the residence of that natural guardian will be regarded as the minor's residence. The residence of a person other than a parent or a natural or legal guardian who may furnish funds for payment of tuition, fees, or living expenses will in no way affect the residence classification of a minor.

RESIDENCE OF INDEPENDENT INDIVIDUALS 18 YEARS OF AGE OR OLDER

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Establishment of Residence

Independent individuals 18 years of age or over who move into the state and who are gainfully employed within the state for a period of 12 months prior to enrolling

in a public institution of higher education are entitled to classification as residents. An individual who is self-employed or employed as a homemaker within the home may be considered gainfully employed for tuition purposes. If such 12 months residence, however, can be shown not to have been for the purpose of establishing legal residence in the state but to have been for some other purpose, the individuals are not entitled to be classified as residents. Students enrolling in an institution of higher education prior to having resided in the state for 12 months immediately preceding time of enrollment will be classified as non-residents for tuition purposes.

RECLASSIFICATION

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Persons classified as non-residents upon first enrollment in a public institution of higher education are presumed to be non-residents for the period during which they continue as students. If such non-resident students withdraw from school and reside in the state while gainfully employed for a period of 12 months, upon re-entry into an institution of higher education, they will be entitled to be reclassified as residents for tuition purposes if other evidence indicates they have established a domicile in the state of Texas.

Reclassification as a Resident

The presumption of "non-resident" is not a conclusive presumption, however, and other facts may be considered to determine if the presumption has been overcome. Materials to this determination are business or personal facts or actions unequivocally indicative of a fixed intention to reside permanently in the state. Such facts may include, but are not limited to, the length of residence and employment prior to enrolling in the institution, the nature of such employment while a student, presence in Texas as a part of a household transferred to the state by an employer, purchase of a homestead, or dependency upon a parent or guardian who has resided in Texas for at least 12 months immediately preceding the student's enrollment. All of these facts are weighed in the light of the fact that a student's residence while in school is primarily for the purpose of education and not to establish residence, and that decisions of an individual as to residence are generally made after the completion of an education and not before.

Students classified as non-residents shall be considered to retain that status until they make written application for reclassification. This is done by filling out the residence questionnaire which is available in the Admissions Office. Students are notified in writing concerning the reclassification decision.

All students are expected to pay the tuition assessed on or before the payment date for each semester as established by the University. All residence questionnaires and forms verifying non-resident tuition exemption status must be submitted to the Admissions Office prior to the official census date of the term for which the change is sought. To prevent any delay in enrollment, students are encouraged to submit all forms at least two weeks prior to registration. Consult the Class Schedule for specific information concerning the submission of non-resident tuition exemption forms.

Loss of Residence

Residents who move out of state will be classified as non-residents immediately upon leaving the state, unless their move is temporary (generally less than 5 years) and residence has not been established elsewhere. Conclusive evidence must be provided by the individuals supporting their present intent to return to the state. Among other things, a certificate from the employer that the move outside the state is temporary and that a definite future date has been determined for return to Texas may qualify as proof of the temporary nature of the time spent out of the state. Internship programs as part of the academic curriculum that require the student to return to school may qualify as proof of the temporary nature of the time spent out of state.

Re-Establishment of Residence

Persons who resided in Texas for at least 5 years prior to moving from the state and who have returned to the state for residence purposes before having resided out of the state for a year will be classified as residents.

Reclassification as a Non-Resident

Persons who have been classified as residents of Texas shall be reclassified as non-resident students whenever they shall report, or there is found to exist, circumstances indicating a change in legal residence to another state. If students who have been classified as residents of Texas are found to have been erroneously classified, those students shall be reclassified as non-residents and shall be required to pay the difference between the resident and non-resident fees for those semesters in which they were so erroneously classified.

If students have been erroneously classified as non-resident students and subsequently prove to the satisfaction of the director of admissions that they should have been classified as resident students, they shall be reclassified as residents of Texas and may be entitled to a refund of the difference between the resident and non-resident fees for the semesters in which they were so erroneously classified. Normally, the refunds must be requested and substantiated during the current term.

INTERNATIONAL STUDENTS

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The following visa holders are eligible to establish a domicile in the United States and have the same privilege of qualifying for resident status for tuition purposes as do citizens of the United States: A-1, A-2, G-1, G-2, G-3, G-4, K; or OP-1, I-551, or I-688 visas which have not expired.

12-Month Residence

Only a permanent resident may file with the federal immigration authorities a declaration of intention to become a citizen. Generally, individuals who enter the state under a visa which does not allow the establishment of a domicile and who obtain permanent resident status while in Texas must wait a minimum of 12 months from the date of issue to request resident status for tuition purposes. However, in cases where a protracted amount of time (more than 12 months) lapses between the date of application for permanent residence and the granting of permanent residence status, the institution may consider the lapsed time a part of the individual's required 12 months in the state if the individual has otherwise met the requirements for establishing residency.

EXCEPTIONS

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Contact the Admissions Office for complete information on non-resident tuition waivers.

ECONOMIC DEVELOPMENT AND DIVERSIFICATION EMPLOYEES

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An individual eligible to establish a domicile in Texas, who has come from outside Texas and registered in an educational institution before having resided in Texas for a 12-month period immediately preceding the date of registration and his dependents are entitled to pay the tuition fee and other fees required of Texas residents if the individual has located in Texas as an employee of a business or organization within 5 years of the date that such business or organization became established in this state as part of the program of state economic development and diversification authorized by the constitution and laws of this state and if the individual files with the Texas institution of higher education at which he registers a letter of intent to establish residency in Texas. Eligible companies are identified by the Texas Higher Education Coordinating Board.

MILITARY PERSONNEL, VETERANS, AND COMMISSIONED OFFICERS OF THE PUBLIC HEALTH SERVICE

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Persons in military service and commissioned Public Health Service Officers are presumed to maintain during their entire period of active service the same legal residence that was in effect at the time of entering the service. Persons stationed in a state for military or Public Health Service are presumed not to establish a legal residence in the state because their presence is not voluntary but under military or Public Health Service orders.

Eligibility for Waiver of Non-Resident Tuition

To be entitled to pay resident tuition, military and Public Health Service personnel shall submit, prior to the time of each enrollment, a statement from their commanding officer or personnel officer certifying that they are then assigned to duty in Texas and that same will be in effect at the time of such enrollment in a public institution of higher education.

Change of Domicile

It is possible for members of the military service of Public Health Service to abandon the domicile of original entry into the service and to select another, but there must be clear and unequivocal proof of such intent. Evidence which will be considered in determining this requisite intent includes, but is not limited to, a substantial investment in a residence and claiming it as a homestead, registration to vote and voting in local election, registration of an automobile in Texas and payment of personal property taxes thereon, obtaining a Texas driver's license, maintaining checking accounts, savings accounts, and safety deposit boxes in Texas banks, existence of wills or other legal documents indicating residence in Texas, change of permanent address with the military or Public Health Service and designation of Texas as the place of legal residence for income tax purposes on military or Public Health Service personnel records, business transactions or activities not normally engaged in by military or Public Health Service personnel, and membership in professional or other state organizations. Purchase of property during terminal years of military or Public Health Service preceding retirement and a terminal duty assignment in Texas in which an individual has engaged in personal, business, and/or professional activities indicative of their intent to remain in the state will be given more consideration than most other evidence presented.

Students Enrolled in ROTC Programs

A non-resident student who is a member of an ROTC unit will be required to pay non-resident tuition rates until such time as the student has signed a contract which cannot be terminated by the student and which obligates the student to serve a period of active military duty.

NATO Forces Stationed in Texas: Nonresident aliens stationed in Texas in keeping with the agreement between the parties to the North Atlantic Treaty Organization (NATO) regarding the status of their forces, their spouses, and dependent children are eligible to pay the same tuition rate as Texas residents.

TEACHERS, PROFESSORS, AND THEIR DEPENDENTS

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Teachers and professors employed at least half-time on a regular monthly salary basis (not as hourly employees) by any Texas public institution of higher education may pay the same tuition as a resident of Texas for themselves, their spouses, and their dependent children, regardless of the length of residence in the state if the effective date of employment is on or prior to the official census date of the relevant term(s). To be entitled to pay the resident tuition, such employees must submit to the Admissions Office, prior to the time of each enrollment, a statement certifying employment from the director of human resources of the institution of higher education by which he or she is employed.

TEACHING OR RESEARCH ASSISTANTS

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Teaching or research assistants employed at least half-time in a degree program-related position, with an effective date of employment on or before the official census date of the relevant term(s), may apply to pay the same tuition while attending the employing institution as a resident of Texas for themselves, their spouses, and their dependent children, regardless of the length of residence in the state. The institution which employs the students shall determine whether or not the students' jobs relate to their degree programs. Employment must be for the duration of the period of enrollment for which the waiver is requested. Eligible students must submit to the Admissions Office, prior to registration, a verification form from the employing department certifying such employment.

SCHOLARSHIP STIPEND RECIPIENTS

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A student awarded a competitive scholarship/stipend in the amount of $1,000 or more for the academic year, the summer session, or both by an official scholarship committee or committees is eligible to pay resident tuition.

ACADEMIC COMMON MARKET

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UTEP participates in the Academic Common Market, a cooperative tuition-reduction agreement among fourteen Southern Regional Education Board states. If the public institutions in your home state do not offer a degree program in your chosen field of study, it may be possible to arrange a waiver of non-resident tuition to attend UTEP (or any other cooperating public institution of higher education in an Academic Common Market state) for that program. Likewise, Texas residents may be eligible for resident-rate tuition for member-state schools for degree programs not available in Texas public institutions. A listing of member states and eligible degree programs are available in the Admissions Office.

MEXICAN CITIZENS

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A citizen of Mexico is eligible to pay tuition equal to that charged Texas residents provided the student demonstrates a financial need after the resources of the student and the student's family have been considered. A PASE application form must be submitted each year for this waiver.

NEW MEXICO RESIDENTS

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Residents of the following New Mexico counties that are adjacent to Texas are eligible to pay resident tuition: Doña Ana, Otero, Eddy, Lea, Roosevelt, Curry, Quay, and Union. New Mexico students interested in applying for this resident tuition rate must contact the Admissions Office prior to registration each semester to fill out the appropriate waiver form.

STUDENT RESPONSIBILITIES

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Oath of Residency

When completing the oath of residency portion of the application for admission, the student is responsible for registering under the proper residence classification and for providing documentation as required by the public institution of higher education. If there is any question as to right to classification as a resident of Texas, it is the student's obligation, prior to or at the time of enrollment, to raise the question for official determination by the director of admissions. Students classified as Texas residents must affirm the correctness of that classification as a part of the admissions procedure. If the student's classification as a resident becomes inappropriate for any reason, it is the responsibility of the student to notify the Admissions Office. Failure to notify the institution constitutes a violation of the oath of residency and will result in disciplinary action.

PENALTIES

Student Compliance with Institutional Rules and Regulations
Each institution has been authorized by statute to assess and collect from non-resident students failing to comply with the provisions of the tuition statute and with these interpretations concerning non-resident fees a penalty not to exceed $10 a semester. In addition, if students have obtained residence classification by virtue of deliberate concealment of facts or misrepresentation of fact, they may be subject to appropriate disciplinary action, in accordance with the rules and regulations of The University of Texas at El Paso.

POLICIES AND PROCEDURES

- Academic Regulations:
  Choose Regulation for explanation go
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POLICIES AND PROCEDURES

Academic Regulations

Current regulations are applicable to every student enrolled, regardless of the date of admission. Interpretations or explanations contrary to the regulations herein set forth shall not be binding upon the University.

Choose Regulation for explanation go

POLICIES AND PROCEDURES

General Requirements for Undergraduate Degrees

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POLICIES AND PROCEDURES

Academic Regulations

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STUDENT RESPONSIBILITY

Students are responsible for being aware of

1. the current academic regulations and calendar of the University;
2. the general and specific degree requirements in the major field;
3. those policies which apply to registration;
4. their academic status including eligibility to re-enroll in the University. An ineligible student who enrolls will be dropped.

General academic regulations are contained in this section of the University Catalog. Degree requirements and those specific to a given major field can be found in the pertinent college and departmental sections. Registration policies, procedures, and schedules can be found in this section and in the *Class Schedule*.

Clarification and assistance can be obtained from the academic deans, department chairpersons, and official departmental academic advisors.

Students are bound by the academic regulations in effect at the time of each registration, including those recent changes that appear in the *Class Schedule*.

POLICIES AND PROCEDURES

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TEXAS COMMON COURSE NUMBERING SYSTEM

The University of Texas at El Paso participates in the Texas Common Course Numbering System, which was developed to facilitate the transfer of general academic courses among Texas colleges and universities. Common courses are those freshman and sophomore level courses taught throughout Texas which correspond with the general description of courses or category of courses included in the *Community College General Academic Course Guide Manual*. A UTEP course determined to be equivalent to a course listed in the *Guide* has the common course number listed next to the UTEP course title in the individual college sections of this catalog. Students interested in transferring can refer to the common course number in each college or university catalog to determine course transferability among institutions.

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RESOLUTION OF TRANSFER DISPUTES

The Texas Higher Education Coordinating Board has issued guidelines for the resolution of transfer disputes between Texas colleges and universities. These guidelines are designed to facilitate the transfer of lower-division courses and to clarify for students their rights and responsibilities as potential transfer students. The transfer curricula shall be as prescribed by the current issue of the Coordinating Board's guide to transfer curricula and transfer of credit.

If a public institution of higher education does not accept course credit earned by a student at another institution of higher education, that institution shall give written notice to the student and the other institution that the transfer of the course credit is denied. The two institutions and the student shall attempt to resolve the transfer of the course credit in accordance with the Coordinating Board rules and/or guidelines.

If the transfer dispute is not resolved to the satisfaction of the student or the institution at which the credit was earned within 45 days after the date the student received written notice of the denial, the institution whose credit is denied shall notify the Commissioner of Higher Education or the Commissioner's designee who shall make the final determination about a dispute concerning the transfer of course credit and give written notice of the determination to the student and institutions.

Questions concerning the evaluation of transfer credit should be referred to the Admissions Office. UTEP students who have difficulty having UTEP credit accepted at other Texas public institutions should contact the director of admissions at UTEP for initiation of the transfer dispute resolution process.

- Academic Regulations
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CREDIT BY EXAMINATION

The University recognizes academic achievement acquired through means other than performance in organized classes. There are five ways in which course credit may be earned. These include the College Entrance Examination Board's College Level Examination Program (CLEP) Subject and General Examinations, CEEB Advanced Placement Examinations, SAT II Subject Tests, DANTES Subject Examinations, and Departmental Examinations prepared, administered, and scored by UTEP faculty members who teach the course. Official score reports must be sent directly to the Admissions Office from the testing agency. Departmental test results and recommendations must be sent directly to the Records Office. Credit earned by examination is recorded on the official UTEP academic record after the student's first semester of enrollment at the University.

Credit by Examination Policies

1. Credit earned by examination will be awarded only to enrolled and formerly enrolled UTEP students who meet credit by examination eligibility requirements.
2. Credit by examination may be earned for any subject listed below unless the student (a) has earned credit for a higher level course in that subject area, or (b) has enrolled in the course and received a grade other than "W."
3. Credit earned by examination satisfies degree requirements in the same way as credit earned by instruction. There is no limit to the amount of credit that may be earned by examination, and credit by examination can be used to meet prerequisites for higher level courses.
4. Students must submit original test scores to the University to apply for credit by examination. If a student has received credit by examination at another institution and has completed more advanced work in that subject area with a grade of "C" or higher, credit will be allowed on the basis of the other institution's transcript and official scores are not required.
5. Credit earned by examination does not fulfill the UTEP degree requirement for completion of 30 semester hours in residence.
6. Credit earned by examination is recorded as a grade of "CR" and is not included in the grade point average calculation.
7. All decisions regarding specific tests for credit or placement, cut-off scores, and eligibility to take examinations are made by the appropriate academic department with the concurrence of the academic dean. Changes made in the regulations, tests, and cut-off scores become effective at the end of the semester in which the change is approved.

Credit by Examination

UTEP is pleased to offer university credit based on successful completion of the nationally recognized and departmental examinations listed below.

Credit Awarded	Test Title	Min. Score
CEEB Advanced Placement Examinations		
ARTF 1301, 1302 based on portfolio review	Studio Art: Drawing	3
ARTF 1301, 1302 based on portfolio review	Studio Art: General	3
ARTH 1305, 1306	Art History	3
BIOL 1305, 1306	Biology	3
BIOL 3 hr elective	Environmental Biology	3
CHEM 1305, 1306	Chemistry	3
CS 1401	Computer Science A	3
CS 1401	Computer Science AB	3
ECON 2303	Macroeconomics	3

ECON	2304	Microeconomics	3
ENGL	1311, 1312	Language and Composition	3
ENGL	1311, 1312	Literature and Composition	3
FREN	1401, 1402, 2301, 2302	French Language	3
FREN	1401, 1402, 2301, 2302, 3357	French Language	4
FREN	1401, 1402, 2301, 2302, 3357, 3355	French Language	5
FREN	1401, 1402, 2301, 2302	French Literature	3
FREN	1401, 1402, 2301, 2302, 3301	French Literature	4
FREN	1401, 1402, 2301, 2302, 3301, 3357	French Literature	5
GERM	1401, 1402, 2301, 2302	German Language	3
HIST	1301, 1302	United States History	3
HIST	2301, 2302	European History	3
LATN	1401, 1402, 2301, 2302	Latin Literature	3
LATN	1401, 1402, 2301, 1302	Latin: Vergil	3
MATH	1411	Calculus AB	3
MATH	1411, 1312	Calculus BC	3
MUST	1311	Music Theory	3
PHYS	1403, 1404	Physics B	3
PHYS	2410	Physics C: Mechanics	3
PHYS	2411	Physics C: Elec & Magnetism	3
POLS	2310	US Government & Politics	3
POLS	3 hr elective	Comparative Govt & Politics	3
PSYC	1301	Psychology	3
SPAN	1401, 1402, 2301, 2302	Spanish Language	3
SPAN	1401, 1402, 2301, 2302, 3355	Spanish Language	4
SPAN	1401, 1402, 2301, 2302, 3355, 3357	Spanish Language	5
SPAN	1401, 1402, 2301, 2302	Spanish Literature	3
SPAN	1401, 1402, 2301, 2302, 3357	Spanish Literature	4
SPAN	1401, 1402, 2301, 2302, 3357, 3300	Spanish Literature	5
STAT	2380	Statistics	3

SAT II Subject Tests			
BIOL	1305	Biology	550
CHEM	1305	Chemistry	550
ENGL	1311	Writing	550
ENGL	3 hr elective	Literature	550
FREN	1401, 1402	French & French with Listening	550
GERM	1401, 1402	German & German with Listening	550
LATN	1401	Latin	550
MATH	1508	Mathematics Level IIC	550
SOSC	3 hr elective	Amer History & Social Studies	550
SOSC	3 hr elective	World History	550
SPAN	1401, 1402	Spanish & Spanish with Listening	550

CLEP Subject Examinations			
ACCT	2301, 2302	Principles of Accounting	47
BIOL	1305, 1306	General Biology	46
BLAW	3 hrs. elec.	Introductory Business Law	51
CHEM	1305	General Chemistry	47
ECON	2303	Introductory Macroeconomics	48
ECON	2304	Introductory Microeconomics	47
EDPC	3 hrs. elec.	Intro to Educational Psychology	47
+ENGL	1311 or 1311, 1312	College Composition (credit depends upon essay)	50
FREN	1401, 1402	College French	50
GERM	1401, 1402	College German	50
HIST	1301	American History I	45
HIST	1302	American History II	45
HIST	2301	Western Civilization I	46
HIST	2302	Western Civilization II	47
MATH	1411	Calculus with Elem Functions	47
MGMT	3303	Principles of Management	47
MKT	3300	Principles of Marketing	48
POLS	2310	American Government	47
PSYC	1301	Introduction to Psychology	47
PSYC	2310	Human Growth & Development	45
SOCI	1301	Introductory Sociology	47
SPAN	1401, 1402	College Spanish	50

CLEP General Examinations			
ENGL	3 hr elective	English Composition	443
ENGL	6 hr elective	English Composition	524
GSCI	3 hr elective	Natural Sciences	421
GSCI	6 hr elective	Natural Sciences	475
HUMN	3 hr elective	Humanities	421
HUMN	6 hr elective	Humanities	475
MATH	3 hr elective	Mathematics	421
MATH	6 hr elective	Mathematics	475
SOSC	3 hr elective	Social Sciences	421
SOSC	6 hr elective	Social Sciences	475

DANTES Examinations			
ACCT	2301	Prin of Financial Accounting	47
ANTH	3 hr elective	General Anthropology	47

ART	1300	Art of the Western World	48
ASTR	3 hr elective	Astronomy	48
BLAW	3301	Business Law II	52
BUSN	3 hr elective	Introduction to Business	46
CIS	1302	Intro to Comp/Prog & BASIC	47
ECON	3320	Money and Banking	48
ENGL	3357	Technical Writing	47
FIN	3310	Principles of Finance	47
FIN	3 hr elective	Risk and Insurance	50
GEOL	1301	Physical Geology	50
HSCI	3 hr elective	Here's to Your Health	48
MATH	3 hr elective	Business Mathematics	45
MGMT	3304	Organizational Behavior	48
MGMT	3311	Personnel/Humn Res Mgmt	48
MGMT	3 hr elective	Principles of Supervision	46
MKT	3300	Basic Marketing	47
POLS	3 hr elective	War & Peace in Nuclear Age	53
PSYC	2310	Life Span Devel Psychology	46
REST	3300	Principles of Real Estate	48
STAT	2380	Principles of Statistics	48

UTEP Departmental Examinations			
ARTF	1301, 1302	Students are invited to submit portfolios for review	
CHEM	1305	General Chemistry	C
CHEM	1306	General Chemistry	C
FREN	Varies *	College French	
GERM	Varies *	College German	
HSCI	2302	Nutrition	70
SPAN	Varies *	College Spanish	

* If the course into which the student places is completed with a "C" or better, credit is given for all prerequisite courses.

+ Students must score a minimum of 27 on the English portion of the ACT or 319 on the MAPS-English test to be eligible to take the CLEP College Composition examination.

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Academic Regulations

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NON-TRADITIONAL EDUCATIONAL EXPERIENCES

Credit for non-traditional experiences is awarded based on American Council on Education recommendations published in the *National Guide to Educational Credit for Training Programs and the Guide to the Evaluation of Educational Experiences in the Armed Services* when such recommendations parallel courses offered at UTEP. Direct course equivalents are given for freshman and sophomore-level ACE recommendations where applicable. Lower-division or advanced elective credit will be given for other ACE recommendations where appropriate. The student's academic dean or department will determine the applicability of elective credit to the student's degree plan. Official records verifying course completion from the appropriate source or from the ACE Registry of Credit Recommendations must be submitted to the Admissions Office. If an AARTS transcript is not available for military experience, official copies of the certificates of completion must be submitted.

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PLACEMENT EXAMINATIONS

All entering students must satisfy placement testing and pre-enrollment TASP requirements. These requirements can be satisfied by completing the MAPS placement tests offered at UTEP. Transfer students who have college-level credit in English or Mathematics may be exempt from the placement testing requirements, but must satisfy the pre-enrollment TASP requirement. Transfer students should contact the Admissions Office to determine appropriate placement and TASP status.

Retakes can be used for placement purposes but will not change TASP status after first test administration. There are no reading retakes. Credit is not awarded for these examinations. The following is a list of available placement exams.

TEST	TEST SCORE	COURSE PLACED INTO
Computer Information Systems (CIS)	0 - 79 80 - 100	CIS 2320 Exempt from CIS 2320
Conventions of Written English	300 - 311 312 - 318 319 - 325	ENGL 0310 ENGL 0311 ENGL 1311
ACT - English	27 - 36	Eligible to take the Eng. CLEP exam
SAT II Writing	200 - 390 400 - 460 470 - 540 550 - 800	ENGL 0310 ENGL 1310 ENGL 1311 or ENGL 1611 ENGL 1312
Elementary Algebra	600 - 615 616 - 713	MATH 0310 MATH 0311
Intermediate Algebra	714 - 725	MATH 1320 or MATH 1508
Functions & Graphs	400 - 411 412 - 425	MATH 1320 or MATH 1508 MATH 1508 or MATH 2301
T - 4	Greater than 9	MATH 1411
Reading	100 - 113 114 - 125	TLC 003 or ENGL 0310 Exempt from Reading
Spanish for Non-Native Speakers	0 - 18 19 -27 28 - 35 36 - 44 45 - 50	SPAN 1401 SPAN 1402 SPAN 2301 SPAN 2302 33-(See Spanish Dept. for Placement)
Spanish for Native Speakers	0 - 73 74 - 83 84 - 100	SPAN 2303 SPAN 2304 33-(See Spanish Dept. for Placement)
French Part A	0 - 34 35 - 44 45 - 50	FREN 1401 FREN 1402 Needs to take Part B
French Part B	0 - 41 42 - 53 54 - 60	FREN 2301 FREN 2302 (See Languages & Linguistics for Placement)
SLEP	20 - 34 35 - 49 50 - 54	ESOL 1810 & TLC - 1 ESOL 1510 & TLC - 1 ESOL 1306 & ESOL 1309
SLEP Composition	Below 4 4 or above	ESOL 1306 & ESOL 1309 ESOL 1311 & ESOL 1210

Speech	0 - 69 70 - 100 (must also pass oral test)	COMM 1301 Exempt from COMM 1301
Nutrition (Prerequisite BIOL 1305)	0 - 69 70 - 100	HSCI 2302 Exempt from HSCI 2302

The Secondary Level English Proficiency (SLEP) placement examination is required of all students whose secondary education was not in English and who took the TOEFL or PAA for admission. Students enrolling in the ESOL Program are expected to complete the appropriate course sequence. Students may retest only if they have not enrolled in an ESOL course during the 12 months following the test date, or with approval of the ESOL Coordinator, if they provide proof that they have attended ESOL classes at another institution. For further information concerning the placement examinations or information about time and place of the exams, contact the Student Assessment and Testing Office, Education Building, Suite 210, or call (915) 747-5009.

ADMISSION

Undergraduate Admission Office Web Site :

http://www.utep.edu/admit

Texas Academic Skills Program (TASP)

For information about the TASP, refer to the **Academic Regulations** section in this catalog.

POLICIES AND PROCEDURES

Academic Regulations

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REGISTRATION

Although every effort is made to advise students academically, final responsibility for registration rests with the student. Students can attend only those classes for which they are officially enrolled. A student is not enrolled in a course and will not receive a grade for it unless the proper fees are paid by the deadlines published in the *Class Schedule* or unless arrangements have been made for deferral of payment with the Student business Services Office. After registration, class enrollments can be verified with the Records Office.

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LATE REGISTRATION

Any student who, with proper permission, registers after the appointed days for registering will be required to pay a special charge of $20.00 for the late telephone and Web registration process, $30.00 for in-person late registration, and $50.00 on or after the first class day. A new student will have the late registration fee waived as long as registration is made prior to the first day of classes. Late registrants are subject to the same regulations and course requirements as students who enroll on time. Each class missed because of late registration will be counted as an absence, and class or laboratory work missed will be counted as zero unless the instructor grants permission to make up the work.

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AUDIT REGISTRATION

Courses may be audited under the following provisions:

1. No grades will be provided, no credit will be awarded, and no records will be maintained for audited courses. The extent of class participation is at the *discretion* of the instructor. Credit by examination for audited courses will not be permitted unless tuition and all appropriate fees are paid.
2. The following courses are *not* available for audit: clinical, laboratory, studio activity, individual instruction, private lessons, or courses specified in a student's degree plan.
3. Audit-only students will be afforded use of the Library through the purchase of a community user card and access to campus parking through the purchase of a parking decal, but they may not enjoy other student privileges such as ID's, tickets to events, and the health service.
4. Audit registration must be filed after classes have begun and prior to the twelfth day of class during the long semesters, and, by the sixth day of class during the summer session. Students should report to the Records counter to obtain an AuditRegistration form.
5. This form must then be signed by the instructor teaching the course and the department chair. Bring the completed form to the Student Business Services Office, located in the Academic Services Building, for payment. Leave the "paid" Audit Registration form with the Cashier. The Audit Registration form will be filed with the Records Office. A copy of the audit form, stamped "paid," will be forwarded to the instructor.
6. Audit Fees:
    a. $5.00 per course for students concurrently enrolled at UTEP for other courses
    b. $25.00 per course for students not concurrently enrolled at UTEP for other courses
    c. No charge for persons over 65 years of age

The audit fees are charged to defray the expense of administering the audit and are non-refundable.

ADMISSION

Undergraduate Admission Office Web Site :

http://www.utep.edu/admit

Academic Fresh Start Program

(Texas Education Code, Section 51.931)

An applicant for undergraduate admission who is a Texas resident may elect to enter this institution pursuant to the Academic Fresh Start statute, *Texas Education Code*, §51.931. When the applicant informs the admissions office in writing of the election, the institution will not consider in the admissions decision any academic course credits or grades earned by the applicant 10 or more years prior to the starting date of the semester in which the applicant seeks to enroll. An applicant who elects to apply under this statute may not receive any course credit for courses taken 10 or more years prior to enrollment under the Academic Fresh Start statute.

The courses excluded for Academic Fresh Start purposes may not be counted toward a degree, may not be counted in the cumulative GPA calculation, may not be used to remove any existing high school deficiencies, and may not be used to meet prerequisite requirements. These courses and grades will remain on the student's official UTEP academic transcript. A notation will be made on the student's academic transcript indicating that portion of the record that is to be involved in computing requirements for graduation.

Students with three or more semester credit hours or the equivalent awarded prior to fall semester, 1989, *are exempt* from the Texas Academic Skills Program regardless of any election pursuant to the Academic Fresh Start statute.

An applicant who has earned a baccalaureate degree under the Academic Fresh Start statute, *Texas Education Code*, §51.931, and applies for admission to a postgraduate or professional program will be evaluated on only the grade point average of the course of work completed for that baccalaureate degree and the other criteria stated herein for admission to the postgraduate or professional program. The Academic Fresh Start Acknowledgement must be returned to the Admissions Office or Graduate School before the Document Due Date of the semester for which the student is applying.

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REINSTATEMENT OF STUDENTS AFTER EXTENDED ABSENCE

At the time of reinstatement to the University after an absence of at least *two academic years*, a student has the option of:

1. continuing with the academic record and GPA as they stand, and completing all remaining requirements for graduation; or
2. beginning anew, with no courses attempted earlier at UTEP counted toward the degree, nor counted in the cumulative GPA calculations. This option may be elected only once.

If option (1) is chosen, the GPA will be computed according to rules in force at the time of re-entry. If option (2) is chosen, notation will be made in the student's record indicating that portion of the record which is to be involved in computing requirements for graduation.

There is no assurance that courses attempted prior to this option will be accepted as transfer credit by another institution. In either case, all courses taken and grades earned will remain on the official academic record. Pursuit of the degree under either option does not exempt the student from the provisions of the "seven-year rule" (see Catalog Requirements below).

If the student was not eligible to re-enroll at the end of the last period of enrollment at the University, negotiation of a Petition for Reinstatement with the academic dean of either the previous or intended major is required at the time of reinstatement. The petition will specify which of the two options has been chosen.

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STUDENT-INITIATED REGISTRATION CHANGES

The student should refer to the academic calendar at the beginning of this catalog or in the *Class Schedule* to identify the period during which adds, drops, withdrawals, and pass/fail registration may be accomplished. All student changes in registration must follow the procedures outlined in the *Class Schedule*.

Withdrawal from Courses
If a student withdraws from a course prior to the official census date of any semester, the course will be deleted from the student's record. Withdrawal from a course initiated by a student after the census date but prior to the course drop deadline (end of the 8th week of a long semester or end of the 4th week during a summer session), will result in a grade of "W." After the course drop deadline, withdrawal from a course initiated by a student will result in a grade of "F."

A grade of "W" can be assigned after the course drop deadline only under exceptional circumstances and only with the approval of the instructor and the academic dean for the course. The student must petition for the "W" grade in writing and provide the necessary supporting documentation.

It is the student's responsibility to officially drop any course that he or she no longer wishes to attend. Failure to do so may result in a grade of "F" on the student's academic record. Students dropping all classes are withdrawing from the University and should consult the paragraphs on "Withdrawal from the University."

At the discretion of the instructor, a student may be dropped from a course because of excessive absences or lack of effort with a grade of "W" before the course drop deadline and with a grade of "F" after the course drop deadline. A copy of the Faculty Drop Form will be mailed to the student by the Records Office.

A grade of "F" received due to the disciplinary sanction imposed by the University overrides a grade of "W" received through a student-initiated withdrawal.

Withdrawal from the University
Withdrawal from the University must be done through the Records Office. If the withdrawal is completed prior to the deadline for student-initiated course drops, the student will receive "W"s. If the withdrawal is completed after that deadline, instructors will determine grades of "W" or "F."

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CLASS ATTENDANCE

The student is expected to attend all classes and laboratory sessions. It is the responsibility of the student to inform each instructor of extended absences. When, however, in the judgment of the instructor, a student has been absent to such a degree as to impair his or her status relative to credit for the course, the instructor may drop the student from the class with a grade of "W" before the course drop deadline and with a grade of "F" after the course drop deadline.

Excused Absences for University-Recognized Activities
Students who will be absent while representing the University in officially recognized University activities (sports, band, professional conferences, etc.) must notify the Dean of Students not less than ten days prior to the absence. The Dean of Students will provide the student with a letter of excuse for the professor. It is the student's responsibility to give the letter to the professor prior to the official recognized activity. Students following these procedures will be permitted to make up both assignments and examinations in consultation with instructors.

Absence for Religious Holy Days
Section 51.925 of the *Texas Education Code* related to absences by students for observance of religious holy days states that the institution will allow a student who is absent from classes for the observance of a religious holy day to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence when the following conditions are met. The student must notify the instructor of each course (not later than the 15th day of the semester) that the student will be absent for a religious holy day. The student's notification must be in writing and must be either (a) delivered by the student personally to the instructor of each class, with receipt of the notification acknowledged and dated by the instructor, or (b) by certified mail, return receipt requested, addressed to the instructor of each class. The student may not be penalized for these excused absences if the missed assignment or examination is completed within a reasonable time.

"Religious holy day" means a holy day observed by a religion whose places of worship are exempt from property taxation under Section 11.20, *Tax Code*.

Absence from Examinations
A student absent from a test during the semester is graded zero unless another policy is set by the instructor.

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CLASSIFICATION OF STUDENTS

Freshman	Fewer than 30 semester hours of credit
Sophomore	30-59 semester hours of credit
Junior	60-89 semester hours of credit
Senior	90 or more semester hours of credit

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- Academic Honors

Academic Regulations

Current regulations are applicable to every student enrolled, regardless of the date of admission. Interpretations or explanations contrary to the regulations herein set forth shall not be binding upon the University.

Choose Regulation for explanation go

COURSE NUMBERING SYSTEM

Each course offered by The University of Texas at El Paso is identified by a four-digit course number. The first number indicates the level: 0 = precollege or remedial, 1 = freshman, 2 = sophomore, 3 = junior, 4 = senior, 5 or 6 = graduate. The second number indicates the semester hour value of the course. The last two numbers identify the course within its particular department.

Lower-Division Courses are designated by a 1 or 2 as the first digit of the course number.

Upper-Division (Advanced) Courses are designated by 3 or 4 as the first digit of the course number. The student should refer to the departmental and college requirements for specific conditions, if any, imposed on registration in advanced courses.

Graduate Courses are designated by a 5 or 6 as the first digit of the course number.

POLICIES AND PROCEDURES

Academic Regulations

Current regulations are applicable to every student enrolled, regardless of the date of admission. Interpretations or explanations contrary to the regulations herein set forth shall not be binding upon the University.

Choose Regulation for explanation go

UNDERGRADUATE COURSE LOAD

Maximum credit load per long semester is 21 hours and an appropriately shorter load per summer session. Written permission of the academic dean must be secured to take more than the maximum load; students must have a GPA above 2.0 to seek permission.

Full-time students are those who are registered for 12 or more semester hours in a long semester or for 9 or more semester hours in a summer session. All other undergraduate students are classified as part-time.

Students who are not Eligible to Enroll without conditions such as those who are on Academic Probation or Academic Suspension/Dismissal, or who have been readmitted or reinstated from such conditions, or who are in provisional admission status, will have course load conditions imposed by their advisor or dean. See the section entitled **Standards of Academic Performance**.

POLICIES AND PROCEDURES

- Academic Regulations
- General Requirements for Undergraduate Degrees
- Academic Honors

Academic Regulations

Current regulations are applicable to every student enrolled, regardless of the date of admission. Interpretations or explanations contrary to the regulations herein set forth shall not be binding upon the University.

Choose Regulation for explanation go

ENROLLMENT VERIFICATION

For enrollment verification to financial aid, loan agencies, insurance companies, VA, etc., the categories listed below will be followed. Students are encouraged to enroll in the appropriate number of credit hours as specified by the agencies.

Fall and Spring:

full-time	=	12 or more hours per semester
¾ time	=	9 - 11 hours per semester
½ time	=	6 - 8 hours per semester
less than ½ time	=	5 or fewer hours per semester

Summer:

full-time	=	9 or more hours
¾ time	=	7 - 8 hours
½ time	=	6 hours
less than ½ time	=	5 or few hours

POLICIES AND PROCEDURES

Academic Honors

The University of Texas at El Paso offers three opportunities for students to achieve special recognition for academic performance based on their cumulative GPA at the time of graduation. Graduation with any of these honors adds a special distinction to academic records and diplomas and may enhance the prospects for graduating seniors to enter graduate and professional schools or the job market. To be eligible for these programs, candidates must be among the most able and intellectually curious of students and must meet minimum GPA requirements. Each form of honors is described more fully below.

ACADEMIC HONORS AT GRADUATION

Honors will be awarded upon graduation in the following categories for each baccalaureate degree:

1. Summa Cum Laude (Highest Honors) will be awarded to students who attain a minimum UTEP grade point average of 3.90. A transfer student must have completed at least 85% of the academic work applied to the degree at The University of Texas at El Paso to be eligible for Highest Honors.
2. Magna Cum Laude (High Honors) will be awarded to students who attain a minimum UTEP grade point average of 3.80, but who do not qualify for Highest Honors. A transfer student must have completed 75% of the academic work applied to the degree at The University of Texas at El Paso to be eligible for High Honors.
3. Cum Laude (Honors) will be awarded to students who attain a minimum UTEP grade point average of 3.50, but who do not qualify for High or Highest Honors. A transfer student must have completed 50% of the academic work applied to the degree at The University of Texas at El Paso to be eligible for Honors.

Requirements for honors for a second degree include the above requirements with the additional stipulation that the student complete sixty (60) hours beyond the original baccalaureate requirements.

In computing the minimum grade point average for academic honors at graduation, only grades earned at UTEP will be included.

Recognition at commencement will be by the wearing of an Honors cord: Highest Honors - gold, High Honors - white, and Honors - color of college.

UNIVERSITY HONORS PROGRAM

Students participating in the University Honors Program enroll in special Honors courses, which may be experimental, team-taught, or interdisciplinary, that are limited in size to permit more discussion and interaction between the instructor and students. Honors courses emphasize development of communicative skills and critical thinking. Program members may also earn Honors credit by contracting in non-Honors courses. Other options include earning the University Honors Degree or Certificate and completing an Honors Senior Project, bearing 6 hours of credit, in which students carry out directed research and present their findings, usually in the form of a thesis.

The program offers a number of special features and benefits to its students: priority registration, the Honors Lounge, Honors Council, and *Honors Journal*, as well as opportunities to serve as tutors, to study in Honors semesters at other campuses, and to interact with students from Honors programs at universities around the country.

Students accepted into the Honors Program generally must rank in the upper 15% of their high school graduating class or achieve a superior score on either the SAT or ACT. A 3.3 GPA is the criterion for admitting students already enrolled at the University and for students transferring to UTEP from another college or university. See the University Honors Program section of this Catalog for specific details on program options.

Students wishing more information are invited to contact the Honors Director, Honors House, located behind the Academic Services Building, (915) 747-5858.

DEPARTMENTAL HONORS PROGRAM

Students wishing to earn departmental Honors will complete a senior thesis, senior project, or other special requirement, depending on the department. A departmental faculty member will direct the project or thesis. The director, along with a departmental honors committee, will judge the student's work, and outside referees may be consulted if deemed appropriate. Students may include departmental honors credits with university honors credits, upon consultation with the University Honors Program Director, in order to earn Honors at both levels. The following offer Departmental Honors: Political Science, Psychology,

History, Chemistry, Biological Sciences, Geological Sciences, and Physics. Completion of a senior thesis/project is recognized at commencement by the wearing of a dark green cord.

STUDY ABROAD PROGRAMS

National Student Exchange Program
(Texas Education Code, 51.930)
UTEP is a member of the National Student Exchange (NSE) Program that is a consortium of more than 150 state-supported colleges and universities. The program offers students the opportunity to broaden their academic and cultural awareness in different geographic settings across the United States and its territories. Students are able to enroll at a host university for up to one academic year and pay in-state tuition rates.

To qualify a student must be full-time at the time of the application and the semester prior to the exchange, have a cumulative grade point average (GPA) of 2.5, and be a sophomore or junior at the time of the exchange. For more information, contact the NSE Coordinator at the Honors House at (915) 747-5858.

Study Abroad Opportunities
As a member of the Texas Consortium for Study Abroad, UTEP is able to offer qualified students the possibility of an academic year, a semester or a summer session at universities in Australia, Austria, Britain, the Czech Republic, France, Hong Kong, Italy, Japan, Mexico, Russia, and Spain. Internships are also available in Britain. Deadlines and fees vary. For further information, contact Dr. Sandra Beyer at 747-5767.

The UTEP Semester in Russia and Ukraine
The Semester is an extension of the UTEP Russian Program. In both countries, language classes are conducted from 9:00 a.m. to 12:00 p.m. five days a week. Afternoon cultural studies are followed by excursions and field trips to major points of interest. Credit is awarded upon successful completion of the course and a post-course test. For additional information, please contact Dr. Z.A. Kruszewski at (915) 747-7984.

FACILITIES AND STUDENT SERVICES

FACILITIES AND STUDENT SERVICES

Academic and Research Facilities

Select Facility for explanation go

FACILITIES AND STUDENT SERVICES

Academic and Research Facilities

Select Facility for explanation go

The University Library, housed in an elegant and comfortable six-story building with seating capacity for 2,300 users, is open on a daily basis, 94 hours a week. It houses over one million books and government publications, as well as over one million microforms. Subscriptions are maintained to 2,600 journals and newspapers. Most materials are available for loan to university students, faculty, and staff.

Books, journals and audio-visual materials are listed in the Library's computerized catalog. This catalog allows users to conduct searches by author, title, subject, and key word. It is accessible from computers located on all floors of the library, campus offices, and at home. In addition, the Library LAN (Local Area Network) provides access to over 150 electronic databases in all major areas of study at the University. These databases provide bibliographic information as well as selected abstracts and full text research articles and reports. Internet access to catalogs of other academic libraries is also available.

The professional staff of the Reference Department provide instruction and assistance in locating and using traditional hardcopy as well as the electronic resources of the Library. Librarians are available to provide assistance with specialized collections in departments such as Government Documents, which receives half of all materials published by the Federal Government; and Special Collections, which houses rare books as well as the following thematic collections: Art, Printing, Military History, Western Fiction, Chicano Studies, Border Studies, and Oral History. The Library's manuscript and archival materials are also located in the Special Collections Department.

The Access Services Department provides automated checkout services, makes reserve materials available, and provides inter-library loan/document delivery services. CPM (Current Periodicals and Microforms) houses journals and newspapers that have been published within the last two years, newspapers, and microforms. Support for students and faculty, who are involved in distance education, is provided by the library. Support includes delivery of books and other materials by mail, consultation with librarians, and access to electronic resources via the Internet.

The Library Technology Center provides IBM and Apple microcomputers for student use. Standard word processing and other software packages are available. In addition, the Center has an extensive collection of educational videotapes for use in the Library.

Self-service photocopying equipment is available on all floors of the Library and a full-service Copy Center is located on the first floor. Study rooms and graduate study carrels are conveniently located throughout the library.

FACILITIES AND STUDENT SERVICES

Academic and Research Facilities

Select Facility for explanation go

The Center for Effective Teaching and Learning (CETaL) is a resource for University faculty. CETaL provides the faculty with workshops, the opportunity for faculty mentoring, and a library of teaching and learning materials. Through these services, faculty can then document their teaching effectiveness.

CETaL seeks to cultivate an environment where teaching is highly valued and where teachers strive continuously to improve their effectiveness. It is a scholarly center working to find, document, and report the best teaching practices at UTEP and elsewhere. In addition, CETaL aids faculty in doing scholarly research on teaching, curriculum, and other issues related to delivery of instruction.

CETaL is a resource for those who understand that teaching is a complex and interactive process among many parties in a variety of environments, and that it can be taught, improved, and evaluated.

FACILITIES AND STUDENT SERVICES

Academic and Research Facilities

Select Facility for explanation go

The Office of Technology Planning and Distance Learning (TPDL) is a resource for UTEP faculty, students, and staff. Its mission is to provide graduate and undergraduate students, who are unable to take advantage of a traditional class schedule, with appropriate opportunities to participate in the learning process through the use of alternative media and methods for the delivery of instruction. The TPDL office serves as the UTEP campus center for design, delivery, and evaluation of distance education; it also collaborates with public and private institutions to meet the expanding needs for higher education and workforce retooling in the region; and it develops graduate and undergraduate instructional programs that integrate a variety of print materials, face-to-face interactions, World Wide Web (WWW), Internet, interactive videoconferencing, and other electronic communication for teaching and learning.

In addition to scheduling and coordinating the use of distance learning facilities across the network service areas and other learning sites, TPDL services include technical support to faculty, staff, and students in the design and adaptation of instructional material for distance learning; training and assistance in the proper use of equipment in the distance learning classrooms; and the staffing and providing of technical assistance during video conferences and multimedia classroom use.

Located in UTEP's new UGLC, the office of TPDL also enables UTEP to be an active partner of the new "Virtual University" of Texas: the TeleCampus. University courses are offered at a distance across the various University of Texas component campuses using a variety of technology-based delivery systems, such as interactive videoconferencing, the World Wide Web, and the Internet, coupled with print media, digital library resources, and face-to-face instruction at off-campus sites. Two of the full degrees offered through the UT TeleCampus are the MBA, offered by UTEP's College of Business Administration and seven other University of Texas campuses, and the MEd Tech (Educational Technology On-Line), which UTEP, UT Brownsville, UT Austin, and several other Texas Universities will deliver via the Internet.

Students interested in undertaking distance courses through the UT TeleCampus must be fully admitted to a UT academic component university and complete the Inter-Institutional Distance Education Admission & Registration (IDEAR) form located on-line at the UT TeleCampus web site. Once admitted to one of the 15 University of Texas campuses, students can select courses offered via the distance education delivery options of the UT TeleCampus. Students are required to abide by the host university policies, procedures, and requirements regarding course drop/withdrawal and graduation policies. For further details on the registration process and student qualifications, visit the UT TeleCampus at www.telecampus.utsystem.edu.

The administrative offices for UTEP's distance learning programs are located in the new Undergraduate Learning Center (UGLC), Suite 316. TPDL staff can be contacted by phone at (915) 747-6675, fax at (915) 747-8610, and e-mail at tpdl@utep.edu. The TPDL web site with a complete listing of course offerings can be visited at http://www.utep.edu/tdl.

FACILITIES AND STUDENT SERVICES

Academic and Research Facilities

Select Facility for explanation go

UTEP's specialized research centers provide research opportunities for faculty and students, coordinate academic and research programs, and sponsor seminars and conferences of interest to the University community.

FACILITIES AND STUDENT SERVICES

Academic and Research Facilities

Select Facility for explanation go

In the **Materials Center for Synthesis and Processing (MCSP)**, faculty and students conduct research on the synthesis and processing of materials, including advanced, optical, and semiconducting materials. A major goal of the MCSP is to increase the access of minorities and women to careers in science and engineering by providing outstanding research opportunities to undergraduate and graduate students.

FACILITIES AND STUDENT SERVICES

- Academic and Research Facilities
- Student Services

Academic and Research Facilities

Select Facility for explanation go

The **Materials Research Institute (MRI)** administers UTEP's interdisciplinary Ph.D. program in materials science and engineering. It also sponsors materials-related conferences and seminars and coordinates UTEP's linkages with materials programs in Mexico.

FACILITIES AND STUDENT SERVICES

Academic and Research Facilities

Select Facility for explanation go

By providing information and technical assistance to private and public sector organizations, UTEP's **Texas Center for Border Economic and Enterprise Development**, part of a consortium that also includes centers at Texas A&M University International and The University of Texas Pan-American, enhances the competitive position of the Texas-Mexico border region in the emerging global economy while integrating the region into the state's economy. UTEP's Center focuses on demographic and economic analysis, community education, information services, international trade assistance, project coordination, surveys, and data acquisition.

FACILITIES AND STUDENT SERVICES

Academic and Research Facilities

Select Facility for explanation go

The **Center for Environmental Resource Management (CERM)** coordinates faculty and student research addressing problems of waste, air quality, water resources, energy, and environmental policy affecting the El Paso Southwest. Students receiving support through CERM get first-hand experiences on projects such as management of water resources in the El Paso/Cd. Juï¿½rez area, development of alternative energy technologies including wind energy and solar ponds, and investigations of environmental toxicology in desert habitats. CERM also coordinates education and community outreach programs, including UTEP's doctoral program in environmental science and engineering.

FACILITIES AND STUDENT SERVICES

Academic and Research Facilities

Select Facility for explanation go

Established through a five-year, $6.5 million grant from the National Aeronautics and Space Administration, the *Pan American Center for Earth and Environmental Science (PACES) contributes to NASA's Mission to Planet Earth by maintaining a database of remote sensing, geophysical, geological, and environmental data generated by NASA and other agencies, focused on the southwestern United States and northern Mexico. Faculty and students affiliated with PACES are developing a high-level computer language to facilitate the access and integrated analysis of the data and use the Center's databases for pure and applied research in the earth and environmental sciences. PACES represents a collaboration between UTEP and NASA's Goddard Space Flight Center, Ames Research Center, and Jet Propulsion Laboratory, along with other universities and agencies.*

FACILITIES AND STUDENT SERVICES

Academic and Research Facilities

Select Facility for explanation go

Established in 1992 through a five-year, $4.5 million grant from the National Institutes of Health, the **Border Biomedical Research Center** (BBRC) supports biomedical and biostatistical research focusing on the U.S.-Mexico border region. The Center includes a Cell Biology Unit, consisting of three core research facilities (the Biochemistry and Molecular Biology Core Facility, the Cell Culture Core Facility, and the Analytical Cytology Core Facility) housed in the Biology Building and the Biostatistics Unit housed near the Department of Mathematical Sciences. A local area network connects all members of both units electronically.

FACILITIES AND STUDENT SERVICES

Academic and Research Facilities

Select Facility for explanation go

The *Laboratory for Environmental Biology, a component of UTEP's Centennial Museum, is the major research and teaching support unit for the field collections-oriented biological sciences at the University. It is a major regional center for collections of plants, modern vertebrates, modern mollusks, and late Cenozoic fossil vertebrates and mollusks of the Southwest and Mexico.*

FACILITIES AND STUDENT SERVICES

Academic and Research Facilities

Select Facility for explanation go

The Center for **Geotechnical and Highway Materials Research** coordinates basic and applied research related to the nation's transportation infrastructure. It is an internationally known center of excellence in nondestructive testing of transportation facilities and is expanding its activities to include transportation planning and infrastructure management. The Center's laboratory facilities are comprehensive and modern. It is equipped with a modern soil and paving materials research test facility for conducting the most advanced dynamic and static laboratory tests, such as cyclic triaxial, resonant column, resilient modulus, and almost all tests for mechanistic design of flexible pavements.

FACILITIES AND STUDENT SERVICES

Academic and Research Facilities

Select Facility for explanation go

A national leader in research and education focusing on the U.S.-Mexico border, the **Center for Inter-American and Border Studies** (CIABS) provides support for faculty and student research, sponsors seminar series and publications addressing border issues, and works to forge linkages between UTEP and universities in Mexico and the rest of Latin America. CIABS also coordinates UTEP's undergraduate degree programs in Latin American and border studies, as well as the only U.S. Ph.D. program in Border Studies, which is offered in conjunction with The University of Texas at Austin.

FACILITIES AND STUDENT SERVICES

Academic and Research Facilities

Select Facility for explanation go

Established in 1996, the **Public Policy Research Center** coordinates UTEP's efforts to research, analyze, and/or interpret public policy. Faculty and students from a variety of disciplines analyze issues in three broad areas: general economic policy; international trade policy, with an emphasis on the North American Free Trade Agreement; and investment in both physical and social infrastructure. Recent research has addressed issues related to regional economic development, criminal justice, water policy, and health reform. PPRC sponsors community forums on policy issues, and students undertake activities such as conducting exit polls during local, state, and national elections.

FACILITIES AND STUDENT SERVICES

Academic and Research Facilities

Select Facility for explanation go

The **FAST Center for the Structural Integrity of Aerospace Systems** was established in 1995. Funded primarily by the Air Force Office of Scientific Research, FAST is a partnership among UTEP, Texas A&M University, Sandia and Los Alamos National Laboratories, and the Jet Propulsion Laboratory. FAST's interdisciplinary teams of faculty and students conduct research to test the safety of aging military aircraft, using non-destructive evaluation to detect and characterize flaws before defects reach critical size that could lead to catastrophic failure. The Center also offers a series of technical seminars, bringing experts in the field to campus to interact with UTEP students.

FACILITIES AND STUDENT SERVICES

Academic and Research Facilities

Select Facility for explanation go

The **Center for Electronics Manufacturing (CEM)** was established in 1995 through a grant from the Department of Defense to conduct cutting-edge research that enables the electronics industry in general and the defense electronics industry in particular to meet today's challenges; to transfer DoD technology to the civilian electronics industry; and to support human resource development in science and engineering. Faculty and students at CEM conduct state-of-the-art research projects in four areas: Quality Assessment and Control, Agile Production Control, Industrial Base Modeling, and Interface and Control. CEM also sponsors curriculum development and leads technology transfer efforts with small business through an Industrial Lecture Series and participation in regional, national, and international conferences.

STUDENT LIFE POLICIES AND PROCEDURES

- Academic and Research Facilities

Select Facility for explanation go

- Student Services

Find out more about : go

FACILITIES AND STUDENT SERVICES

ACADEMIC SUPPORT

FACILITIES AND STUDENT SERVICES

- General Information
- Services
- Tutoring Learning Center (TLC)

The Tutoring and Learning Center
300 Library
Phone: 747-5366
Fax: 747-5486

DIRECTOR: Gladys R. Shaw

Academic Support

Academic success for all UTEP students is the goal of the Tutoring and Learning Center (TLC). Services made available by the center are focused on helping students successfully meet the high academic standards of UTEP's regular college courses; helping students prepare for and pass various standardized exams, including the TASP Test; and helping students make up learning deficiencies in course content to prepare themselves for regular college courses. All services are free to enrolled, eligible, UTEP students.

FACILITIES AND STUDENT SERVICES

- General Information
- Services
- Tutoring Learning Center (TLC)

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Fax: 747-5486

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Services

Free Peer Tutoring at posted hours in most content areas, but especially math, writing, science, languages, and business and accounting courses. Open to all students on a walk-in basis.

Individualized and Computer Assisted Instruction in math, reading, writing, study skills, standardized test preparation, and other areas. Open to all students on a walk-in basis in the Learning Assisted Lab.

Collaborative Learning Activities in special topic classes and workshops facilitated by professional staff and trained Peer Tutors: content study groups, skills workshops, focused labs, language conversation classes, content reviews, supplemental instruction, and test preparation. Scheduled activities are open to all students. Others may be implemented on demand by faculty or by five or more students.

Facilities for Special Needs: All rooms are accessible by wheelchair, and special equipment is available for students with vision or hearing impairments. Appointment tutoring is available for learning disabled students in any content area.

Non-Credit Courses: All non-credit courses are free and open to eligible UTEP students. Students may register for courses during the regular registration process except as noted.

ESOL Assistance: Self-paced instructional and practice materials are available in addition to the bilingual courses and labs listed below.

Distance Tutoring: Quick, specific questions in content areas may be submitted by phone (747-7414), Fax (747-5486), or e-mail (tutoring@utep.edu).

Mentoring: Peer Mentors and Counselor Interns are available on request to provide personal support for UTEP students.

Life Management and Personal Development: A variety of instructional and motivational audio and video tapes are available to help students in such areas as stress management, time management, test anxiety skills, and attitudes for being successful, etc. These are available on a walk-in basis in the Learning Assistance Lab in the center.

FACILITIES AND STUDENT SERVICES

- General Information
- Services
- Tutoring Learning Center (TLC)

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300 Library
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DIRECTOR: Gladys R. Shaw

Tutoring Learning Center (TLC)

0001 College Reading and Study Skills
Provides help with goal setting, time management, note-taking, TASP preparation and other basic techniques needed for academic success. No Prerequisites; required of beginning START students. **Highly recommended** for all beginning students; returning adults; students wanting to study more efficiently; probationary students; and students experiencing motivational, organizational, time management, and/or learning difficulty. (Eight weeks of class instruction plus six hours of lab.)

0002 Extended START TASP Lab
Provides extended START students instruction in study skills and preparation for a specific section of the TASP. *Prerequisite*: Department Approval. (Sixteen hours of instruction over six weeks.)

0003 College Reading and Critical Thinking
Emphasizes the active reading skills necessary for the TASP and college reading assignments. No Prerequisites. Open to all UTEP students; required of students scoring 15-16 on the Placement Assessment. **Recommended** for all students experiencing difficulty in completing and comprehending reading assignments. (Eight weeks of instruction and six hours of lab.)

0007 TASP Composition Lab
Prepares students for the "issue style" of writing called for on the TASP and other styles commonly demanded in college courses such as informative, persuasive, narrative, and data-based or research-oriented writing. *Prerequisite*: department approval. Open to all UTEP students. **Required** of students in English 0311 who score 30-31 on the TSWE.

0011 Bilingual College Reading and Study Skills
Same as TLC 0001 but **for ESOL** students only. *Prerequisite*: Department approval.

0013 Bilingual College Reading and Thinking
Same as TLC 0003 but **for ESOL** students only. *Prerequisite*: Department approval.

0017 Bilingual TASP Composition Lab
Same as TLC 0007 but **for ESOL** students only. *Prerequisite*: Department approval.

0021 SSSP Study Skills
For students in the **Student Support Services Program only**.
Prerequisite: Department approval.

0023 SSSP College Reading and Critical Thinking
For students in the **Student Support Services Program only**.
Prerequisite: Department approval.

0024 Computer Assisted Instruction for TASP Math.
Prerequisite: Departmental Approval.

0025 Computer Assisted Instruction for TASP Reading.
Prerequisite: Departmental approval.

0026 Computer Assisted Instruction for TASP Writing.
Prerequisite: Departmental approval.

UNIVERSITY HONORS PROGRAM

UNIVERSITY HONORS PROGRAM

Honors House
Hawthorne Street
(Behind the Academic Services Building)
Phone: 747-5858
E-mail: honors@utep.edu

DIRECTOR: Lillian F. Mayberry, Ph.D.

General Information

The University Honors Program offers students a richer, more intense and challenging academic experience, as well as closer, more personalized contact with faculty and fellow students. Enrollment in Honors classes is limited to 20. Students must apply to participate in the Program. To be eligible, entering freshmen must have graduated in the top 15% of their high school class or have obtained a superior score on the SAT or ACT. A cumulative 3.3 grade point average is the criterion for admitting current or transfer students. Members must earn Honors credits in a minimum of one course per year and maintain a specified GPA to remain active in the Program.

The program offers two options:

1. - UNIVERSITY HONORS DEGREE
2. - UNIVERSITY HONORS CERTIFICATE

UNIVERSITY HONORS PROGRAM

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DIRECTOR: Lillian F. Mayberry, Ph.D.

University Honors Certificate

Students who wish to pursue a less comprehensive Honors curriculum may elect to obtain the University Honors Certificate by completing 18 hours of Honors course work. At least 6 hours must be upper-division, and 3 of these may be by approved independent study. A maximum of 3 Honors hours may be taken on a Pass/Fail basis, with the same restrictions described for such courses in the University Honors Degree option. Upon graduation with a cumulative GPA of 3.3 or higher, the notation "University Honors Certificate" will appear on the permanent academic record and on the diploma, and all Honors courses completed will be designated with (H) on the transcript.

UNIVERSITY HONORS PROGRAM

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E-mail: honors@utep.edu

DIRECTOR: Lillian F. Mayberry, Ph.D.

University Honors Certificate

3300 Honors Colloquium (3-0)
Examination of a special topic or interdisciplinary area. May be repeated once for undergraduate credit as subject varies. Course approved for undergraduate or graduate credit.

4395 Honors Senior Thesis

4396 Honors Senior Thesis
Students will conduct an Honors Senior Project under the direction of a faculty member in their major department and report the findings, usually in thesis form. During the first semester (HON 4395), a prospectus prepared by the student describing the proposed project will be filed with the Honors office. The completed thesis will be defended orally (HON 4396).

UNIVERSITY HONORS PROGRAM

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E-mail: honors@utep.edu

DIRECTOR: Lillian F. Mayberry, Ph.D.

Honors Contract Credit

Honors Program members enrolled in a non-honors section of a course may arrange for special additional work under the supervision of the instructor. If the contract work is completed and evaluated as Honors quality by the instructor, Honors credit for the class will be awarded. Detailed guidelines and contracts are available at the Honors House.

UNIVERSITY HONORS PROGRAM

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E-mail: honors@utep.edu

DIRECTOR: Lillian F. Mayberry, Ph.D.

Honors Transfer Credit

If an Honors course is completed elsewhere in an institution accredited by the Association for Colleges and Schools and transfers as the equivalent of a course offered at UTEP, the Honors course will be counted towards hours needed to earn the University Honors Degree or Certificate. If the Honors course completed elsewhere transferred to UTEP as enblock (ENB), then the course must be evaluated on an individual basis by the Honors Director in consultation with the Honors Advisory Committee and a decision made based on course content. A minimum of 50% of the credits required for the Honors Degree or Certificate must be completed at UTEP.

UNIVERSITY HONORS PROGRAM

Honors House
Hawthorne Street
(Behind the Academic Services Building)
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E-mail: honors@utep.edu

DIRECTOR: Lillian F. Mayberry, Ph.D.

Honors Recognition At Commencement

The Degree candidate is recognized at commencement by the wearing of a gold stole. The Certificate candidate is recognized at commencement by the wearing of a lilac cord. Students completing a senior thesis/project are recognized at commencement by the wearing of a dark green cord.

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ENTERING STUDENT PROGRAM

ENTERING STUDENT PROGRAM

General Information

The Entering Student Program (ESP) at The University of Texas at El Paso (UTEP) was created in 1999 to provide students with the academic and social support needed to transition to University life. That transition may be from high school, a community college, another university, or the transition may be for a student who has been out of school for some time. The ESP identifies for students all varying aspects of University life, including how to find and use all University resources. Officially, ESP links all the services that an entering student needs to become a successful student: Enrollment Services, Undergraduate Recruitment, New Student Orientation, Academic Advising Center, University Seminar/Academic Programs, and Tutoring and Learning Center. These components provide integrated services to students with an overriding theme of community-building through faculty/staff and peer mentoring, clustering of academic courses, and additional activities. These services maintain a positive and collaborative relationship to insure the success of UTEP's entering students.

ENTERING STUDENT PROGRAM

Goals

The primary goal of UTEP's ESP is to provide students with a supportive atmosphere which guides them through the University community and onto academic success. The program attempts to achieve the following objectives:

- Develop a sense of community among students
- Connect students to resources and services at UTEP
- Help students cope with personal and social issues
- Encourage students' self-assessment and goal clarification
- Increase students' awareness of human diversity, culture, values, and beliefs
- Strengthen students' academic performance and enhance students' academic skills

ENTERING STUDENT PROGRAM

University Courses

An entering student must either take UNIV 1301 or UNIV 2350. University 1301: Seminar in Critical Inquiry is the centerpiece of the ESP. University 1301 is a discipline-based, theme-driven course designed to engage students in the University community. By enrolling in one of these courses, a student gains credit toward graduation and also learns about the University community. The course description identifies the innovative nature of University 1301, which is taught by faculty and staff from various departments across campus.

This course will engage entering students in critical inquiry concerning one or more related academic topics. The seminar will increase students' knowledge of the role of technology in the academic community. Information acquisition, critical thinking, and communication will be integrated in an active learning environment. Students will conduct library and electronic research to support one or more academic projects. Specific topics may vary with instructor.

University 2350: Interdisciplinary Technology and Society is also a part of the Entering Student Program.

Students in this course will be introduced to approaches to technology assessment and will examine social, cultural, and environmental consequences of technology. Problem solving in small groups assigned to research, analyze, discuss, and arrive at possible solutions for a broad range of topics related to technology and society. Specific topics may vary with instructor. Strategies effective uses of electronic technology in support of electronic technology in support of research are emphasized.

Both University courses are officially part of the UTEP Core Curriculum (satisfies block IX Institutionally Designated Option).

UNIVERSITY CORE CURRICULUM

COLLEGE OF BUSINESS ADMINISTRATION

Departments :

Select a Department

go

Dr. Frank Hoy, Dean
Dr. Robert D. Tollen, Associate Dean
Dr. Charles P. Zlatkovich, Associate Dean

Business Bldg., Room 101
Phone: (915) 747-5241
Fax: (915) 747-5147
E-mail: coba@utep.edu

COLLEGE OF BUSINESS ADMINISTRATION

Dr. Frank Hoy, Dean
Dr. Robert D. Tollen , Associate Dean
Dr. John Starner, Director of Undergraduate Programs in Business

Business Administration Bldg., Room 101
Phone: (915) 747-5241
Fax: (915) 747-5147

Introduction and General Information

The College of Business Administration at The University of Texas at El Paso shares with the University its fundamental mission to provide quality higher education to the citizens of El Paso and the West Texas region, to prepare them to function effectively in society, and to contribute to the quality of life in this community and region. The border location of the University and College provides an environment that affords opportunities for students to become knowledgeable in Inter-American economic, business, and cultural matters within the context of a business school education comparable to that provided by other accredited institutions. The College is committed to providing the widest possible access to quality higher education to allow our students to become competitive on a local, regional, national, and international level. Therefore, the goal of the College is to provide:

- Broad-based programs which give students the background for entry into, and advancement in, professional and managerial positions, and for life-long career success.
- Intellectual contributions that improve application of existing knowledge in regional businesses and industries and the border economy, as well as nationally and worldwide; enhance the delivery of instruction to students; and extend the boundaries of knowledge.
- Service which contributes to meeting the personal and professional needs of our students, the University, alumni, community, and academia.

Our quality is reflected in the success of our students, alumni, and faculty and in the enhancement of the personal and professional lives of community residents.

The College also meets an important secondary responsibility as a partner in the U.S.-Mexican community of the region. Many individuals engaged in business enroll in selected courses in order to gain specific skills or to broaden their knowledge. In addition, the faculty of the College of Business Administration participates in the Division of Professional and Continuing Education, which offers a wide variety of non-credit programs including programs for the business practitioner. CEDARS (Centers for Entrepreneurial Development Advancement, Research and Support), through the activities of The Family and Closely-Held Business Forum and The Franchise Center, nurtures an environment to develop, advance, support, and transfer proven strategies and techniques in business principles and practices that will provide for effective and efficient entrepreneurial ventures and support in both local and international markets.

At the heart of all these programs is a distinguished faculty committed to teaching, research, and community services. Their work, as well as that of their students, is supported by the superb facilities of the College of Business Administration. The College of Business provides a Computer Application Learning Center (CALC) laboratory that is the focal point of computer, audiovisual, and multimedia-based learning, including three microcomputer laboratories.

The undergraduate program in the College leads to the Bachelor of Business Administration (BBA) degree. Graduate programs lead to the Master of Business Administration (MBA), the Master of Accountancy (MAcc), and other degree programs. The BBA, the MBA, and the MAcc and are accredited by AACSB--the International Association for Management Education.

Information on graduate programs may be obtained from the *Graduate Studies Catalog*. In addition, a Bachelor of Arts in Economics is offered through the College of Liberal Arts. Business minors, including general business, accounting, economics, management, marketing, and computer information systems, are also available to students in the College of Liberal Arts.

COLLEGE OF BUSINESS ADMINISTRATION

Dr. Frank Hoy, Dean
Dr. Robert D. Tollen , Associate Dean
Dr. John Starner, Director of Undergraduate Programs in Business

Business Administration Bldg., Room 101
Phone: (915) 747-5241
Fax: (915) 747-5147

Bachelor Of Business Administration

The College of Business Administra-tion, with departments of Accounting, Economics and Finance, Information and Decision Sciences, and Marketing and Management, offers a BBA degree with the following majors: Ac-counting; Computer Information Sys-tems; Economics; Finance with concentrations available in General Finance and Commercial Banking; General Business with concentrations in International Business and Secondary Education; Management with concentrations available in General Management and Human Resource Management; Marketing; and Production/Operations Management.

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Dr. Frank Hoy, Dean
Dr. Robert D. Tollen , Associate Dean
Dr. John Starner, Director of Undergraduate Programs in Business

Business Administration Bldg., Room 101
Phone: (915) 747-5241
Fax: (915) 747-5147

Policies Concerning Admission to and Completion of BBA Degree Programs

1. Students entering the College of Business Administration will be designated as Pre-Business majors until they have completed the requirements for admission to a major option program offered by the College. In order to declare as a Pre-Business major, the student must file a degree plan in the Office of the Dean.
2. Admission to a major option program is limited to those students who meet the following requirements:
   a. Completion of the Non-Business Foundation Requirements and the Business Foundation Requirements as described in the "Undergraduate Course of Study" for the Bachelor of Business Administration.
   b. Completion of the following courses (or their equivalent) with a minimum grade of "C": ACCT 2301 and ACCT 2302; ECON 2303 and ECON 2304; ENGL 1312; MATH 1320 and MATH 2301; QMB 2301.
   c. An overall GPA of 2.0 or greater in all hours attempted.
3. Upon completion of requirements in item 2, the student will be admitted to one of the major option programs offered by the College of Business Administration. Upon admission, the major code will be changed from Pre-Business to the major option code for the program.-
4. Enrollment in the upper-division level courses offered by the College of Business Administration is restricted to those students who have been admitted to one of the BBA major option programs. -Permission for concurrent enrollment in lower-division courses in item 2-a and upper-division business courses is granted only once and written permission by the Undergraduate Advisor is required. Upper-division business courses taken by a Pre-Business major without written permission of the Undergraduate Advisor will be counted as business electives only, and other approved upper-level business courses will be designated to complete the degree requirements.
5. A freshman-level course may be repeated once and the latter grade substituted for a previous grade in the students's grade point average (GPA) calculation. -Grades and attempted hours for other repeated courses will be used in computing the GPA.
6. Only those transfer credits with a grade of "C" or better will be accepted for credit toward the BBA degree. Courses taken at two-year institutions or as a requirement for a two-year degree are accepted by the College of Business Administration as transfer credits for lower-division courses only. Courses taken at four-year accredited institutions and designated as lower-division courses may be accepted as upper-division credits if the course is taught at the upper-division level at UTEP and has received additional validation from the Office of the Dean. Transfer credit for upper-division business administration courses is restricted to AACSB accredited curricula. Transfer credit for courses from institutions outside the United States will be evaluated independently. The applicability of transfer credits to the degree plan is determined by the Office of the Dean.
7. To complete the degree, a student must comply with the following:
   - Complete the required course of study as outlined below.
   - Follow University academic regulations as stated else-where in this catalog.
   - Earn a 2.0 GPA in all courses attempted within the College of Business Administration.

   Note: Accounting majors must also earn a 2.0 or better GPA aver-age in ACCT 3321 and accounting courses listed in the Accounting Option Requirement.
8. A graduating senior must file an application for the degree with the Office of the Dean before the semester of graduation. Students are responsible for setting an appointment to clear for graduation during announced times.
9. Students working toward the BBA degree may not enroll on a pass/fail basis in any course taught in the College of Business Administration.
10. Six of the last 30 hours needed to complete the BBA degree may be taken at another university; however, the student must receive written approval from the Office of the Dean before enrolling at the other institution.
11. MGMT 4300, Strategic Management, may be taken only during the semester or summer term in which the degree is to be conferred. Approval of the Undergraduate Advisor is required for enrollment in this course.

12. Non-BBA students wishing to take upper-division business courses must be advised in the College of Business Administration, Room 102. Students wishing to take upper-division courses must have junior standing (60 credit hours) and a 2.0 cumulative GPA and must have completed the stated prerequisites for the course.
13. Students must complete 50 percent or more of their College of Business Administration credit hours at UTEP.
14. Students may pursue more than one major option by completing all requirements, including Major Option Requirements, for all major options selected.

COLLEGE OF BUSINESS ADMINISTRATION

Dr. Frank Hoy, Dean
Dr. Robert D. Tollen , Associate Dean
Dr. John Starner, Director of Undergraduate Programs in Business

Business Administration Bldg., Room 101
Phone: (915) 747-5241
Fax: (915) 747-5147

Concurrent Award of the BBA in Accounting and the Master of Accountancy (The Combined BBA/MAcc Plan)

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Dr. Frank Hoy, Dean
Dr. Robert D. Tollen , Associate Dean
Dr. John Starner, Director of Undergraduate Programs in Business

Business Administration Bldg., Room 101
Phone: (915) 747-5241
Fax: (915) 747-5147

Minors in Business and Economics

Students who are not majoring in Business may obtain minors in Business and Economics in four areas: General Business, Accounting, Economics, and Management. Students should check with their major advisors for further details.

General Business Minor - CIS 2320 and 15 hours from BLAW 3301, ACCT 3309 or 2301, MKT 3300, MGMT 3303, FIN 3310, and ECON 3320 or CIS 3345. Students electing this minor field must complete ECON 2304 (fulfills Social Studies requirement) and MATH 1320, 2301, or STAT 2380 (fulfills Mathematics/Statistics requirement).

Accounting Minor - ACCT 2301 and 2302, CIS 2320, and nine hours from ACCT 3321, 3322, 3323, 3327, 4301, 4305, or 4328. Students electing this minor field must complete ECON 2304 (fulfills Social Studies requirement) and MATH 1320, MATH 2301, or STAT 2380 (fulfills Mathematics/Statistics requirement).

Economics Minor - ECON 2303 and 2304, ECON 3302 or 3303, and nine hours from ECON 3300 or 4300 level courses. Students electing this minor field must complete MATH 1320, MATH 2301, or STAT 2380 (fulfills Mathematics/Statistics requirement).

Management Minor - CIS 2320, ACCT 2301, and 12 hours from BLAW 3301, MGMT 3303, MGMT 3311, MGMT 3320, MGMT 4325, and POM 3321. Students electing this minor field must complete ECON 2304 and MATH 1320, MATH 2301, or STAT 2380 (fulfills Mathematics/Statistics requirement).

Major in Economics in Liberal Arts
Students may obtain a BA degree with a major in Economics from the College of Liberal Arts. See the Department of Economics for de-tails. Students pursuing the BA in Economics may not minor in Business.

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Dr. Frank Hoy, Dean
Dr. Robert D. Tollen , Associate Dean
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Business Administration Bldg., Room 101
Phone: (915) 747-5241
Fax: (915) 747-5147

Undergraduate Course of Study

The course of study for the Bachelor of Business Administration degree includes four sets of academic requirement.

Non-Business Foundation Requirements	48 semester hours
Business Foundation Requirements	15 semester hours
Business Core Requirements	33 semester hours
Major Option Requirements	24 semester hours
Total:	**120 semester hours**

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Fax: (915) 747-5147

Non-Business Foundation Requirements (48 semester hours)

All of these courses except ENGL 3355 must be completed with a grade of "C" or better.

6	-	ENGL 1311* and 1312 (or ESOL 1311, 1210, and 1312)
3	-	ENGL 3355
3	-	COMM 1301* or 1302
6	-	MATH 1320 and 2301
6	-	POLS 2310 and 2311
6	-	HIST 1301 and 1302
3	-	Humanities See University Core Curriculum/Humanities menu for approved courses.
6	-	Natural Sciences; lab required See University Core Curriculum/Natural Science menu for approved courses.
3	-	Visual and Performing Arts See University Core Curriculum/Visual and Performing Arts menu for approved courses.
3	-	PSYC 1301 or SOCI 1301
3	-	UNIV 1301 or UNIV 2350

** English 1611 may be counted for ENGL 1311 and COMM 1301.*

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Dr. Robert D. Tollen , Associate Dean
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Phone: (915) 747-5241
Fax: (915) 747-5147

Business Foundation Requirements

All of these courses must be completed with a grade of "C" or better.

6	-	ACCT 2301 and 2302
6	-	ECON 2303 and 2304
3	-	QMB 2301

The UTEP Core Curriculum is included in the Non-Business Foundation requirements. Students should make core curriculum course choices carefully based on these requirements in order to complete their degrees with the minimum number of courses.

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Business Core Requirements (33 semester hours)

3	-	ACCT 3314 or 3321 or 3323 (Accounting option requires 3321)*
3	-	BLAW 3301
3	-	ECON 3302, 3303, or 3320 (Accounting, Economics, and Finance options require 3320)
3	-	FIN 3310
3	-	CIS 3340 or 3345 (Accounting and CIS options require 3340)
3	-	POM 3321
3	-	QMB 3301
3	-	BUSN 3304
3	-	MGMT 3303
3	-	MKT 3300
3	-	MGMT 4300 (Taken in last semester)

**ACCT 3314 and ACCT 3323 cannot both be taken for credit in any option.*

ACCT 3314 cannot be counted by accounting majors toward fulfillment of any part of the accounting option degree requirements.

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Fax: (915) 747-5147

Major Requirements

Accounting

15	-	ACCT 3314 or 3321 or 3323 (Accounting option requires 3321)*
3	-	Elective from ACCT 4301, 4305, 4321, 4323, 4325, or 4328
3	-	Elective from CIS 3350, 4330, 4365, 4370, or 4398
3	-	Elective from ACCT 43XX, BLAW 4391, FIN 4318, MGMT 3311, or an additional elective from the CIS menu above (CIS 3350, 4330, 4365, 4370, or 4398)

Computer Information Systems

15	-	CIS 3340, 3350, 3355, 4365, and 4370
6	-	Electives from CIS 3385, 4305, 4320, 4330, 4399, or POM 3335
3	-	Upper-division business elective

Economics

6	-	ECON 3302 and ECON 3303
12	-	Electives from upper-division ECON courses
6	-	Upper-division electives

Finance

General Finance Concentration

6	-	FIN 3315 and FIN 4310
9	-	Electives from upper-division FIN courses except FIN 3350
3	-	Elective from upper-division ACCT courses
6	-	Upper-division electives

Commercial Banking Concentration

9	-	FIN 4311, 4312, and 4318
3	-	Elective from FIN 3315, 3325, 4310, or 4325
6	-	Electives from upper-division ACCT courses
6	-	Upper-division electives

General Business

International Business Concentration

6	-	Sophomore language (e.g., SPAN 2301 and 2302 or SPAN 2303 and 2304)
12	-	Electives from ACCT 4325, BLAW 4325, ECON 3366, ECON 3367, ECON 4325, ECON 4368, FIN 4325, MGMT 4325, or MKT 4325
3	-	Upper-division non-business elective
3	-	Upper-division business elective Secondary Education Concentration[1]
3	-	RED 3342
3	-	EDPC 3300
15	-	SCED 3311, 3317, 4370, and 4691
3	-	Upper-division business electives
1	-	TED 2101

[1] Students in this option are required to check with the College of Education about entry into the Teacher Education Program. Students in this option must select an English literature course as the humanities choice in the non-business foundation. The inclusion of TED 2101 requires an adjustment of concentration requirements to 25 semester hours.

General Business Concentration

18	-	Upper-division business electives (no more than 6 hours in any one functional area)
6	-	Upper-division non-business electives

Management

General Management Concentration

12	-	MGMT 3304, 3311, 3315, and 4325
3	-	Elective from upper-division M-GMT courses
3	-	Upper-division non-business elective
6	-	Upper-division business electives

Human Resource Management Concentration

18	-	MGMT 3311, 3315, 4304, 4310, 4315, and 4337
3	-	Upper-division non-business elective
3	-	Upper-division business elective

Marketing

9	-	MKT 3302, 4301, and 4395
3	-	Elective from MKT 3305 or 4325
6	-	Electives from upper-division MKT courses
3	-	Upper-division non-business elective
3	-	Upper-division business elective

Production/Operations Management

15	-	POM 3333, 3335, 3336, 3337, and 3339
6	-	Electives from POM 3331, 3322, 3390, 4398, and 4399
3	-	Upper-division business elective

COLLEGE OF BUSINESS ADMINISTRATION

Dr. Frank Hoy, Dean
Dr. Robert D. Tollen , Associate Dean
Dr. John Starner, Director of Undergraduate Programs in Business

Business Administration Bldg., Room 101
Phone: (915) 747-5241
Fax: (915) 747-5147

Economics and Finance

236 Business Administration Building
Phone: (915) 747-5245
E-mail: econfin@utep.edu

CHAIRPERSON: Timothy P. Roth
GRADUATE FACULTY: Brannon, Fullerton, Herbst, Herendeen, Holcomb, James, Johnson, Lin, Roth, Schauer, Smith, Sprinkle, Tollen

COLLEGE OF BUSINESS ADMINISTRATION

Dr. Frank Hoy, Dean
Dr. Robert D. Tollen , Associate Dean
Dr. John Starner, Director of Undergraduate Programs in Business

Business Administration Bldg., Room 101
Phone: (915) 747-5241
Fax: (915) 747-5147

Information and Decision Sciences

205 Business Administration Building
Phone: (915) 747-5496
E-mail: cobids@utep.edu

CHAIRPERSON: Bob Tollen
PROFESSOR EMERITUS: Edward Y. George
GRADUATE FACULTY: Gemoets, Guthrie, Hall, Kirs, Mahmood, Martin

The Information and Decision Sciences Department participates in the Master of Business Administration, the Master of Accountancy, and the Master of Science in Economics degrees. The requirements of these degrees are found under Business Administration, Accounting, and Economics in this catalog.

COLLEGE OF BUSINESS ADMINISTRATION

Dr. Frank Hoy, Dean
Dr. Robert D. Tollen , Associate Dean
Dr. John Starner, Director of Undergraduate Programs in Business

Business Administration Bldg., Room 101
Phone: (915) 747-5241
Fax: (915) 747-5147

Marketing and Management

230 Business Administration Building
Phone: (915) 747-5185
E-mail: mandm@utep.edu

CHAIRPERSON: Gary L. Sullivan
GRADUATE FACULTY: Eason, Hadjimarcou, Hoy, Ibarreche, Michie, Posthuma, Sama, Sullivan, Trevino

The Department of Marketing and Management participates in the Master of Business Administration, the Master of Accountancy, and the Master of Science in Economics degrees. The requirements of these degrees are found under Business Administration, Accounting, and Economics in this catalog.

COLLEGE OF EDUCATION

Departments:

Select a Department go

Dr. Arturo Pacheco, Dean
Dr. Josefina Tinajero, Associate Dean

Education Bldg, Room 414
Phone: (915) 747-5572
Fax: (915) 747-5755
E-mail: educ@utep.edu

COLLEGE OF EDUCATION

Dr. Arturo Pacheco,
Dean
Dr. Josefina Tinajero,
Associate Dean

Education Bldg.,
Room 414
Phone: (915) 747-5572
Fax: (915) 747-5755
E-mail: educ@utep.edu

Introduction

The mission of the College of Education is to prepare effective teachers, counselors, diagnosticians, and school administrators, who successfully address the problems of schools and other youth serving agencies, especially in communities with a significant Hispanic population. In order to support this mission, the faculty of the College strives to demonstrate by example the quality of teaching expected of its graduates, engages in research and scholarly activities, and provides educational services to the schools and community.

At the undergraduate level, the College offers programs aimed at providing qualified students an opportunity to attain the knowledge, values, and skills needed to enter the teaching profession and to receive an initial Texas teaching certificate. At the graduate level, the College offers Master's degrees in the areas of instruction, educational administration, school counseling, community counseling, educational diagnostics, and special education. In addition to these graduate degree programs, the College offers graduate level courses leading to advanced Texas licensing in administration, supervision, counseling, and various teaching specialties. A Doctor of Education (EdD) degree is offered in Educational Leadership. (For information about graduate programs in Education, please see the University's Graduate Studies Catalog.)

The College maintains close ties with the practicing teaching profession through the Center for Professional Development and Teaching (CPDT). Teacher preparation programs of the University are collaboratively governed by a board made up of university faculty and representatives from the local school districts, the Educational Regional Service Center, and El Paso Collaborative for Academic Excellence. The educator preparation programs are approved by the Texas Higher Education Coordinating Board and by the Texas State Board for Educator Certification (SBEC). Candidates who successfully complete a certification program are recommended to receive teacher certification in the State of Texas.

Professional certification programs in the College of Education are offered in early childhood education; bilingual education; reading education; elementary, secondary, and all-levels education; counseling; special education; educational diagnostics; and educational administration.

Students wishing to explore teaching as a career option enroll in UNIV 1301. In this course, information concerning the teaching profession is presented, and students have an opportunity to discuss career issues with Education faculty and public school practitioners.

The Education Student Services Office is located in Education 412. Staffed with faculty advisors, this office provides information about undergraduate degrees, certification, and transfer work.

The College administrative offices are located on the fourth floor of the Education Building. Program and faculty offices are located on the third through eighth floors.

COLLEGE OF EDUCATION

Dr. Arturo Pacheco,
Dean
Dr. Josefina Tinajero,
Associate Dean

Education Bldg.,
Room 414
Phone: (915) 747-5572
Fax: (915) 747-5755
E-mail: educ@utep.edu

Undergraduate Degree and Teaching Licenses

Elementary Education

The College offers a Bachelor of Interdisciplinary Studies (BIS) degree, which may be taken by students who wish to teach at the elementary or middle school level and who may wish to qualify for a Texas teacher certificate at those levels. Students working on the Bachelor of Interdisciplinary Studies degree must have their degree plan filed in the College of Education. These students are advised by College of Education faculty and request degree and certification course substitutions through that faculty.

Secondary Education and All-Levels Education

Students interested in becoming secondary teachers or all-levels Art, Music, and Physical Education teachers complete a Bachelor of Arts, a Bachelor of Business Administration, a Bachelor of Music, a Bachelor of Science, or a Bachelor of Science in Kinesiology and Sports Studies with a minor in secondary or all-levels teaching, depending on the teaching area of their interest. Program of studies information appears in the appropriate section of this Catalog under the Colleges of Business Administration, Liberal Arts, Health Sciences, and Science. Information on the secondary or all-levels teaching minors is available in the Education Student Services Office, Education 412.

Students working on a degree outside the College of Education and wishing to become certified in Texas as secondary or all-levels teachers have their degree and certification plan filed under the appropriate college in which they are pursuing their major. These students also must have a copy of their degree and certification plan filed in the College of Education Student Services Office, Education 412. They are advised by the faculty of the college of their major and request course substitutions through the office of their college dean. Substitutions pertinent to the secondary or all-levels teaching certificate minor are under the purview of the Dean of Education, who acts as the Certification Officer for the Texas State Board for Educator Certification.

Transfer Students Seeking Degrees in Education

Undergraduate transfer students seeking a Bachelor's degree in Interdisciplinary Studies (BIS) must submit original copies of their transcripts to the Office of Admission and Evaluation (Academic Services Building) for evaluation, as well as an application for admission, prior to consulting with an advisor in the College of Education. No official academic advising is done for transfer students until a written evaluation of previous academic work is prepared by the Office of Admission and Evaluation.

COLLEGE OF EDUCATION

Dr. Arturo Pacheco, Dean
Dr. Josefina Tinajero, Associate Dean

Education Bldg., Room 414
Phone: (915) 747-5572
Fax: (915) 747-5755
E-mail: educ@utep.edu

Admission to Teacher Education

Undergraduate students who wish to become elementary, middle school, secondary, or all-levels teachers in Texas should have an unofficial degree and certification plan prepared as soon as possible. This plan will become official once the student has fulfilled all the requirements for admission to teacher education. A copy of the plan must be filed in the Student Services Office of the College of Education, Education 412. To be admitted to teacher education, students must fulfill the following criteria:

1. Complete ENGL 1311 and 1312 and COMM 1301 with grades of "C" or better in each course.
2. Complete MATH 1320 or 1409 or 1410 or 1411 or a higher level math with a grade of "C" or better.
3. Provide passing scores on the Texas Academic Skills Program (TASP)* test in each of the test areas. To register, contact the Testing and Student Assessment Center, Education 210.
4. Complete 60 semester hours of college work with a cumulative GPA of 2.50 or better.
5. Provide an unofficial degree and/or certification plan filed with the Certification Office.
6. Complete UNIV 1301 or an approved substitution.
7. Provide biographical information and three letters of professional recommendation, at least one of which will be a professional reference from a high school or college teacher, filed in the Student Services Office.

(Note: To receive initial Texas teacher certification, students must be free of felony convictions.)

*Students should contact the Student Services Office to find out if previous coursework can be substituted for the TASP.

Until admitted to teacher education, students indicating intent to become teachers will be classified as Pre-education students. Pre-education students are not permitted to enroll in Bilingual Education (BED), Early Childhood Education (ECED), Elementary Education (ELED), Mathematics Education (MTED), Reading Education (RED), Science Education (SIED), Secondary Education (SCED), Social Science Education (SOSC), or Special Education (SPED) courses with the following exceptions: TED 4350, EDT 3371, and EDPC 4350. According to University policy, students must remain in good standing to progress toward the completion of a degree program (see the appropriate catalog section under Academic Standards). In addition, irrespective of other factors, students may be prohibited from enrolling in Professional Education courses if, once due process has been provided, their suitability for the teaching profession is found to be unacceptable.

COLLEGE OF EDUCATION

Dr. Arturo Pacheco,
Dean
Dr. Josefina Tinajero,
Associate Dean

Education Bldg.,
Room 414
Phone: (915) 747-5572
Fax: (915) 747-5755
E-mail: educ@utep.edu

Field-Based Teacher Preparation

Teacher preparation students are expected to spend a significant amount of time in specially selected schools (partner schools) while they take their professional development courses. Admission to teacher education is required to participate in the field-based teacher preparation program.

Description of the Elementary Field-Based Program

The elementary field-based program consists of one campus-based block and two field-based blocks that are offered in the fall and spring semesters only. Students must take these blocks sequentially. They may not enroll concurrently in blocks. Elementary interns spend approximately 600 clock hours in the schools. A description of these blocks follows.

In the **elementary campus-based block**, the teacher education student begins to develop an understanding of the knowledge, values, and experiential bases underlying the competencies necessary to become an effective teacher. Admission to teacher education is a prerequisite to enroll in this block. Students register for courses that are offered as a block in the morning, in the afternoon, or in the evening, and participate in approximately 30 clock hours of field experience at a partnership school.

In the **elementary field-based block 1**, teacher education students (called interns) participate in the field-based program and solve learning problems mainly through tutorial duties and small group instruction. At this time, interns begin to organize their professional belief system. The semester has an emphasis on role induction. Students are grouped in cohorts and a faculty mentor is assigned to each cohort. Groups of approximately 10 interns are assigned to each elementary school. Faculty mentors follow their interns into the field assignments. Interns are scheduled all morning or all afternoon every school day throughout the semester. They spend approximately 180 clock hours in the schools. During the first weeks of the semester, the major concepts and skills required in the block are introduced and interns become familiar with the students, the teams of teachers, and the community of the partner schools to which they are assigned. In the following weeks, interns begin to spend time with a team of classroom teachers at a partnership school while maintaining frequent contact with University faculty. The last week of the term is dedicated to reflecting on the work done throughout the semester.

In **elementary field-based block 2**, interns solve problems mainly through small group work and begin to take responsibility for whole class instruction. The emphasis on role induction continues and interns work on teaching math, science, and reading at a partnership school (usually the same school at which they were assigned during block 1). Interns demonstrate that they can synthesize the knowledge, values, and experiences of earlier semesters in developing an effective professional style. Proficiency in all program competencies is assessed during this time. In addition to classroom teaching duties, interns help school and university faculty to introduce the new block 1 interns to the program. Interns are scheduled in block 2 from 8:00 to 3:30 every school day throughout the 15-week semester. They spend approximately 400 clock hours in the schools.

Description of the Secondary Field-Based Program

The overall goal of the secondary teacher preparation program is to assist preservice secondary teachers in acquiring the essential competencies required to assume the role of practitioners. The secondary program follows the same field-based model used for elementary, but has two blocks that are offered in the fall and spring semesters only. Interns spend approximately 600 clock hours in the schools. Faculty from the College of Liberal Arts, College of Science, College of Business, and College of Health Sciences participate actively with Education faculty in the preparation of secondary teachers, by teaching some of the methods courses in their respective disciplines. A description of these blocks follows.

In **secondary field-based block 1**, the interns solve learning problems mainly through tutorial duties and small group instruction. At this time, interns begin to organize their professional belief system. The semester has an emphasis on role induction. Students are grouped in cohorts and a faculty mentor is assigned to each cohort. Groups of approximately 15 interns are assigned to each secondary partnership school. Faculty mentors follow their interns into the field assignments. Interns are scheduled all morning or all afternoon every school day throughout the semester. They spend approximately 150 clock hours in the schools. During the first weeks of the semester, the major concepts and skills required in the block are introduced and the interns become familiar with the

pupils, the teams of teachers, and the community of the partner schools to which they are assigned. In the following weeks, interns begin to spend time with a team of classroom teachers at a partnership school while maintaining frequent contact with University faculty. The last week of the term is dedicated to reflecting on the work done throughout the semester.

In **secondary field-based block 2**, the interns solve learning problems mainly through small group work and begin to take responsibility for whole class instruction. The emphasis on role induction continues and interns work on teaching their field of specialization at a professional development school (usually the same school in which they were assigned during block 1). Interns demonstrate that they can synthesize the knowledge, values, and experiences of earlier semesters in developing an effective professional style. Proficiency in all program competencies is assessed during this time. In addition to classroom teaching duties, interns help school and university faculty to introduce the new block 1 interns to the field-based program. Interns are scheduled in block 2 from 8:00 to 3:30 every school day throughout the 15-week semester. They spend approximately 450 hours in the schools.

It is recommended that the appropriate method course be taken, in the evening, concurrently with block 2.

Description of the All-Levels Field-Based Program

All-levels Art, Music, and Physical Education students participate in the same blocks as secondary students with the exception of SCED 3311 (Curriculum Planning in the Secondary School) which Music and Physical Education students do not take. These blocks are offered in the fall and spring semesters only.

In **all-levels field based block 1**, the interns solve learning problems mainly through tutorial duties and small group instruction. At this time, interns begin to organize their professional belief system. Interns are scheduled all morning or all afternoon every school day throughout the semester. They spend approximately 150 clock hours in the schools. The semester has an emphasis on role induction.

During all-levels block 1, all-levels Art interns enroll in:
EDPC 3300 Developmental Variations
EDPC 3311 Curriculum Planning in the Secondary School
SCED 3317 Multicultural Education
RED 3342 Reading in the Content Areas

All-levels Music and Physical Education interns enroll in:
EDPC 3300 Developmental Variations
SCED 3317 Multicultural Education
RED 3342 Reading in the Content Areas

All-levels Music interns enroll in:
MUSE 4333 Teaching Music in Junior and Senior High Schools

All-levels Physical Education interns enroll in:
KIN 4321 P.E. Methods and Materials for Secondary Schools

In **all-levels field-based block 2**, the interns solve learning problems mainly through small group work and begin to take responsibility for whole class instruction. The emphasis on role induction continues and interns work on teaching their field of specialization at a partnership school. Interns demonstrate that they can synthesize the knowledge, values, and experiences of earlier semesters in developing an effective professional style. Proficiency in all program competencies is assessed during this time. Interns are scheduled in block 2 from 8:00 to 3:30 every school day throughout the 15-week semester. They spend approximately 450 clock hours in the schools.

It is recommended that the appropriate method course be taken, in the evening, concurrently with block 2.

The maximum University course load while enrolled in the field-based blocks is 15 semester hours.

COLLEGE OF EDUCATION

Dr. Arturo Pacheco,
Dean
Dr. Josefina Tinajero,
Associate Dean

Education Bldg.,
Room 414
Phone: (915) 747-5572
Fax: (915) 747-5755
E-mail: educ@utep.edu

Application for Graduation and/or Certification

Students must apply for graduation during the first month of the semester in which they intend to complete all degree requirements. A graduation fee is required.

Students who are seeking certification must register for and pass the appropriate State certification exit examinations (ExCET). Students apply for certification once they complete all the requirements, including the appropriate ExCET tests. A fee is required for the Texas Certificate.

In order to be recommended for degree and/or certification, a student must:

- Complete the courses listed in the degree and/or certification plan with an overall GPA of at least 2.0.
- Have a 2.50 GPA or better in the teaching field specialization and in Professional Education courses.

(Note: To receive an initial Texas teacher certification, students must be free of felony convictions.)

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Elementary and Middle School Teacher Preparation Program

Students who wish to become elementary and middle school teachers and receive an initial Texas teacher certificate complete a Bachelor of Interdisciplinary Studies (BIS) offered in the College of Education. The BIS requires the same general education core, cultural foundations concentration, science concentration, and professional studies component of all students. It varies only in the area of specialization within the degree/certificate. There are 17 areas of specialization from which to choose. A description of the BIS program follows:

Bachelor of Interdisciplinary Studies

General Education Core (61-62 semester hours)

12 English: ENGL 1311 or ESOL 1311, ENGL 1312 or ESOL 1312, ENGL 3305, ENGL 4354

3 Communication: COMM 1301 or COMM 1302

6 History: HIST 1301, HIST 1302

6 Political Science: POLS 2310, POLS 2311

9 Mathematics: MATH 1320* or MATH 1508, MATH 2303, and three hours from STAT 1380**, or SOCI 2312 or MATH 3000 level or above.

3 Computer Science: EDT 3371
6 Physical Sciences: PSCI 2303, PSCI 3304

4 Spanish: SPAN 1402 or a higher level Spanish course (three hours minimum). Bilingual Education students complete SPAN 2301 or SPAN 2303 and SPAN 2302 or 2304.

3 Visual and Performing Arts: three hours from ART 1300; MUSL 1221, MUSL 1222, MUSL 1324, MUSL 1327; THEA 1313, THEA 2390

3 Humanities: three hours from HIST 2301, HIST 2302; PHIL 1303, PHIL 2306; ENGL 2311, ENGL 2312, ENGL 2313, ENGL 2314, ENGL 2318

3 Institutionally Designated Option: UNIV 1301

3 Social and Behavioral Sciences: ARTH 1301 or ARTH 1302, LING/ANTH/ ENGL 2320 or SOCI 1301

6 Natural Sciences: GEOL 1303 and GEOL 1304 (recommended), ASTR 1307 and ASTR 1308 (ASTR 1107 or ASTR 1108), CHEM 1407 and CHEM 1408, PHYS 1403 and PHYS 1404, or SCI 1401 and SCI 1402

A grade of "C" or better is required for ENGL 1311, ENGL 1312, COMM 1301, and MATH 1320.

* Mathematics specialization requires MATH 1508 (or 1410). Precalculus is recommended for students with Life/Earth Sciences and Physical Sciences specializations.

** Mathematics specialization requires STAT 1380 or STAT 2380- 2182.

Interdisciplinary Major (Minimum of 49 semester hours)

18-24 **Teaching Specialization**

Choose one area from Bilingual Education, Early Childhood, Reading, Special Education; English, French, German, Spanish; History, Social Science; Mathematics, Life/Earth Science, Physical Sciences; Health, Kinesiology; Art, Theatre Arts. See list of courses for each teaching specialization below.

9 **Socio-Cultural Concentration**: SOSC 3330 and CHIC 3339; three hours from ARTH 3310; ANTH 2359; CHIC 3301, CHIC 3311; ENGL/ ANTH 3374; GEOG 1306, GEOG 3310; HIST 3309, HIST 3328; LING 3357; POLS 4312; SPAN 3330.

4 **Science Concentration**: BIOL 1303, BIOL 1103

6 **Reading Concentration**: RED 3340, RED 3441. (Students specializing in Reading choose six hours from English, Communication, Linguistics, or Theatre Arts.)

3 **Computer**: EDT 3371

Professional Education (requires admission to teacher education) 18 semester hours:
EDPC 3300, ELED 3302, ELED 3310, ELED 3311, and two of the following:
BED 4393/ 4394, ECED 4393/ 4394, ELED 4393/ 4394, or SPED 4393/ 4394 depending on the specialization area.
Total: 128-135 hours

(In order to receive the BIS degree, students must complete a minimum of 128 credit hours, and have a 2.0 cumulative GPA and a 2.50 GPA in both specialization courses and Professional Education courses.)

List of Teaching Specialization Courses (18-24 semester hours)

18 **Art**: ART 1300; ARTF 1301, ARTF 1302; ARTE 3317; ARTT 3337, ARTT 4327 or ARTT 4337

24 **Bilingual Education**: SPAN 2302 or SPAN 2304; SPAN 3309; BED 4327, BED 4340, BED 4341, BED 4342, BED 4344, and BED 4343 or LING 3308

24 **Early Childhood Education**: ECED 3333, ECED 3340, ECED 4353, ECED 4356, ECED 4358, ECED 4359; KIN 3318; and three hours from ARTE 3317, MUSE 3334, THEA 3350

18 **English**: ENGL 3311, ENGL 3312, and ENGL 3303 or ENGL 3365; six hours from ENGL 2313, ENGL 2314, ENGL 2318; and three hours from an ENGL 3300 or ENGL 3400-level course or THEA 3350

18 **French**: FREN 2301, FREN 2302, FREN 3305, and FREN 3355 plus six upper-division hours in French

18 **German**: GERM 2301 and GERM 2302, plus twelve upper-division hours in German

18 **Health**: HSCI 1301, HSCI 3301, HSCI 3303, HSCI 4306, and six hours (three upper- division) from HSCI 2302, HSCI 2309, HSCI 3305, HSCI 4303

18 **History**: HIST 2301, HIST 2302, HIST 3317, and HIST 3309 or HIST 3328, plus six upper-division hours in History

19 **Kinesiology-Sports**: KIN 4319, KIN 3318, KIN 2332, KIN 3202, KIN 3204 and six hours from KIN 3201, KIN 3203, KIN 3205, KIN 3206, KIN 3207, KIN 3209, KIN 3210, KIN 3211

18 **Life/Earth Science**: BIOL 1304- BIOL 1104 and BIOL 1306- BIOL 1108; GEOL 3311 and GEOL 3405; SIED 3330

18 **Mathematics**: MATH 1411; three courses selected from MATH 2300, 3300, 3303, or 3304; and MTED 3330 (the required 18 semester hours include two from the required MATH 1508).

19 **Physical Sciences**: CHEM 1407, CHEM 1408; PHYS 1403, PHYS 1404; and SIED 3330

18 **Reading**: BED 4327; ECED 3340; RED 3340, RED 4341, RED 4343, RED 4344, RED 4345, RED 4346, or RED 4347

18 **Social Science**: GEOG 1310; HIST 2302, HIST 3309 or HIST 3328, HIST 3317; an additional three upper-division hours in History; plus three hours from POLS 3320 or SOCI 1301

18 **Spanish**: SPAN 2301 and SPAN 2302 or SPAN 2303 and SPAN 2304, SPAN 3309, and SPAN 3355 or SPAN 3356, plus six additional upper division hours in Spanish

24 **Special Education**: SPED 3310, SPED 3325, SPED 3330, SPED 3340, SPED 3345, SPED 4330, SPED 4340, and SPED 4365 or KIN 4314

18 **Theatre Arts**: THEA 1313, THEA 2413, and THEA 3350, plus nine hours (six upper-division) from THEA 2321, THEA 2322, THEA 3325, THEA 3352

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Secondary School Teacher Preparation Programs

Students who wish to become secondary school teachers and receive an initial Texas teacher certificate complete a bachelor's degree outside the College of Education. These students major in the subject area they desire to teach and complete a minor in secondary education. For example, a student who wishes to teach English would seek a Bachelor of Arts degree in the College of Liberal Arts with a major in English and American Literature and a minor in secondary teaching or a student who wishes to teach Health completes a Bachelor of Science in Health Sciences with a minor in secondary teaching.

Secondary school teaching certificates in Texas allow students to teach their discipline in Middle School and High School (i.e., grades 6-12). Presently, all Texas secondary certificates attainable through UTEP programs require a minimum of 12 semester hours in a second area or support field. Therefore, all students seeking a secondary teacher certificate will have to accumulate 12 semester hours in a second area of specialization that is taught in the public schools. This may be done by counting some courses from the general requirements area and carefully arranging the selection of electives, or by taking additional courses beyond the minimum requirements of the degree. This certificate requirement is to be met by all secondary candidates regardless of their degree or major.

Students desiring to become secondary school teachers must have a degree and certificate plan filed in their appropriate college, and a copy of the plan filed in the Student Services Office of the College of Education, Education 412. The plan identifies the courses required in the teaching minor and any additional subject courses required for certificate that may not be required for a non-teaching degree. The Student Services Office verifies that students have passed the State-mandated test of basic skills (TASP) and have completed all the requirements to be admitted to teacher education. Students will not be allowed to enroll in Reading or Professional Education courses until they have been admitted to teacher education.

The application process for admission to teacher education may be initiated as soon as the student completes 60 hours and a copy of the student's degree and certification plan is submitted to the Student Services Office, Education 412. (See Admission to Teacher Education above.)

List of Approved Secondary Specialization Fields

The University is approved by the Texas State Board for Educator Certification to offer the following fields for secondary certification (students should consult an advisor in their area of specialty for the selection of fields and scheduling of courses):

Basic Business
Communication

English
English-Language Arts
Theatre Arts

French
German
Spanish

History
Political Science
Psychology
Social Studies Composite
Sociology

Mathematics

Biology
Chemistry
Earth Science
Life/Earth Science
Physical Sciences
Physics
Natural Sciences (science composite)
Health

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All-Levels Teacher Preparation Programs

Students who wish to be certified in Texas to teach all-levels (grades 1-12) Art or Music complete a bachelor's degree in the College of Liberal Arts and a minor in education. Students who wish to become all-levels Physical Education teachers complete a bachelor's degree in the College of Health Sciences and minor in education.

Candidates for all-levels teacher certification must have a degree and certification plan filed in their college, and a copy of the plan filed in the Student Services Office in the College of Education. For more detailed information, see the advisors designated to prepare all-levels degree plans in the departments of Art, Music, and Kinesiology.

Methods Courses for the Secondary and All-Levels Education Minor

The following methods courses are part of the secondary and all-levels education minor and appear listed under the academic departments in which the students major:

ENGL 4355 Teaching Composition and Literature in Secondary Schools
LING 4301 Methods of Foreign Language Instruction
FREN 4301 Methods of Foreign Language Instruction
GERM 4301 Methods of Foreign Language Instruction
SPAN 4301 Methods of Foreign Language Instruction
HSCI 4301 Teaching Health in Secondary School
ARTE 4347 Methods of Teaching Art
MUSE 3336 Teaching of Music in Elementary Schools
MUSE 4333 Teaching of Music in Junior and Senior High Schools
KIN 4319 Methods and Materials in Elementary Schools
KIN 4321 Methods and Materials in Secondary Schools

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Endorsements

Endorsements are teaching sub-specializations of additional college work that may be added to a valid Texas certificate. Endorsements may be pursued simultaneously with undergraduate work or later in post-baccalaureate study. The following endorsement programs are available through the College of Education. Students must pass the appropriate state certification tests.

Bilingual Education Endorsement

This endorsement may be added to any valid elementary teacher certificate, special education certificate, or vocational certificate that requires a college degree.

Requirements for the endorsement are as follows:

- Oral proficiency in Spanish, as measured by the Texas Oral Proficiency Test (TOPT)
- BED 4340, BED 4341, BED 4342, and BED 4343
- One year of successful classroom teaching experience while on a permit in an approved bilingual education program, as verified by the employing school district

English as a Second Language (ESL) Endorsement

This endorsement may be added to any valid elementary or secondary teaching certificate, special education certificate, or vocational certificate that requires a college degree.

Requirements for the endorsement are as follows:

- BED 4327, BED 4343; LING 3310, LING 4348
- One year of successful classroom teaching experience while on a permit in an approved ESL or bilingual education program as verified by the employing school district

Information Processing Technology I Endorsement

This endorsement may be added to any valid elementary or secondary Texas teacher certificate, special education certificate, or vocational education certificate which requires a college degree.

Requirements for the endorsement are as follows:

- EDT 3371, EDT 3372, and EDT 4373

THE UNIVERSITY OF TEXAS AT EL PASO

UNDERGRADUATE CATALOG

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COLLEGE OF ENGINERING

- General Information
- Bachelors of Science Offered in :

Civil Engineering	Industrial Engineering
Computer Science	Mechanical Engineering
Electrical Engineering	Metallurgical and Materials Engineering

Select a Department go

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Dr. Stephen Stafford, Associate Dean
Dr. Pablo Arenaz, Associate Dean for Entering Students
Dr. Vijay Singh, Associate Dean for Research
Dr. Darrell Schroder, Assistant Dean

Engineering/Science Complex
Engineering Building, Room E230
Phone: (915) 747-5460
Fax: (915) 747-5616
E-mail: engineer@utep.edu

COLLEGE OF ENGINEEERING

General Information

Bachelors of Science Offered:

- Civil Engineering
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Departments:

- Civil Engineering
- Computer Science
- Electrical and Computer Engineering
- Mechanical and Industrial Engineering
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engineer@utep.edu

Bachelor of Science in Civil Engineering

The Civil Engineering Program at the undergraduate level is broadly based and provides courses in the major divisions of Civil Engineering while, at the same time, offering an opportunity for specialization through junior and senior electives. There are three concentrations that permit more in-depth study: (1) Environmental, (2) Structures, and (3) Geotechnical.

Freshman Year			
1st Semester			Hours
CE	1403+	Introduction to Civil Engineering	4
CHEM	1305+	General Chemistry	3
CHEM	1105+	Laboratory for Chemistry 1305	1
ENGL	1311+	Expository English Composition	3
CE	1305+	Graphic Fundamentals in Engineering Design	3
MATH	1411+	Calculus I	4
		Total	18
2nd Semester			
ENGL	1312+	Research and Critical Writing	3
MATH	1312+	Calculus II	3
HIST	1301+	History of U. S. to 1865	3
		Physics Elective[1]	4
		University Elective[2]	3
		Total	16

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Sophomore Year			
1st Semester			
CE	2315+	Engineering Mechanics I	3
HIST	1302+	History of the U.S. since 1865	3
MATH	2313+	Calculus III	3
POLS	2310+	Introduction to Politics	3
CHEM	1306+	General Chemistry	3
CHEM	1106+	Laboratory for General Chemistry	1
		Total	16
2nd Semester			
MECH	2338+	Engineering Mechanics II	3
CE	2334+	Mechanics of Materials	3
MECH	3375+	Thermodynamics	3
MATH	2326+	Differential Equations	3
POLS	2311+	American Government and Politics	3
		Communications Elective [3]	3
		Total	18

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Junior Year			
1st Semester			
CE	3313	Engineering Measurements	3
CE	3343	Structural Analysis I	3
GEOL	3321	Geology for Engineers	3
MECH	3454	Fluid Mechanics	4
		Humanities Elective[4+]	3
		Total	16
2nd Semester			
IE	3326	Engineering Economy	3
CE	4448	Soil Mechanics	4
CE	3136	Materials Laboratory	1
CE	4340	Transportation Engineering	3
		Visual and Performing Arts Elective[5+]	3
		Social and Behavioral Science Elective[6+]	3
		Total	17

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Senior Year			
1st Semester			
CE	4335	Structural Design I	3
CE	4341	Water Supply Engineering	3
CE	4373	Statistics Applications	3
CE	4195	Senior Professional Orientation	1
		Mathematics Elective	3
		Civil Engineering Elective	3
		Total	16
2nd Semester			
CE	4456	Hydraulic Engineering	4

CE	4342	Wastewater Engineering	3
CE	4153	Water & Waste Laboratory	1
CE	4361	Structural Design II	3
CE	4388	Senior Design	3
		Civil Engineering Elective	3
		Total	17

Total Semester Credit Hours 134

[+] A grade of "C" or better is required in these courses.

[1] PHYS 2410 or PHYS 2411

[2] UNIV 1301 or UNIV 2350

[3] COMM 1301 or COMM 1302

[4] Humanities Menu

[5] Visual and Performing Arts Menu

[6] Social and Behavioral Science Menu

COLLEGE OF ENGINEEERING

General Information

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Bachelor of Science in Computer Science

The Computer Science Program at the undergraduate level is designed to provide a strong base in programming skills, problem solving, a theoretical understanding of computer science, and practical experience in applying the computer to the solution of problems. Specialization is provided through numerous upper-division electives.

FRESHMAN YEAR			
1st Semester Hours			
CS	1401+	Introduction to Computer Science	4
ENGL	1311+	Expository English Composition	3
MATH	1411+	Calculus I	4
HIST	1301 +	History of U.S. to 1865	3
Free elective			3
		Total	17
2nd Semester			
MATH	1312+	Calculus II	3
PHYS	2410+	Mechanics and Thermal Physics	4
PHYS	1120+	Physics Laboratory I	1
ENGL	1312+	Research and Critical Writing	3
HIST	1302 +	History of U. S. since 1865	3
Free elective			3
		Total	17

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SOPHOMORE YEAR			
1st Semester			
CS	2401+	Programming and Algorithms	4
MATH	2300+	Discrete Mathematics	3
MATH	2313+	Calculus III	3
PHYS	2411+	Fields and Waves	4
PHYS	1121+	Physics Laboratory II	1
POLS	2310 +	Introduction to Politics	3
		Total	18
2nd Semester			
CS	2302+	Data Structures	3
CS	3432	Assembler Language Programming	3
EE	2369	Digital Systems Design I	3
POLS	2311 +	American Government and Politics	3
Directed elective			3
		Total	15

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JUNIOR YEAR			
1st Semester			
CS	3320	Introduction to Computer Architecture	4
CS	3320	Problem Oriented Programming Languages	3
STAT	3320	Probability or	
EE	3384	Probabilistic Methods in Engineering & Science	3
Technical elective			3
Directed elective			3
		Total	16
2nd Semester			
CS	3360	Design and Implementation of Programming Languages	3
CS	3335	Systems Programming	3
MATH	3323	Matrix Algebra	3
Technical elective			3
Directed elective			3
		Total	15

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SENIOR YEAR			
1st Semester			
CS	4310	Software Engineering I	3
CS	4195	Senior Professional Orientation	1
MATH	4329	Numerical Analysis	3
CS	3350	Automata, Computability, & Formal Languages	3

Directed elective			3
Technical elective			3
		Total	16
2nd Semester			
CS	4311	Software Engineering II	3
Quantitative Science elective			3
Technical elective			3
Technical elective			3
Directed elective			3
		Total	15
		Total Semester Credit Hours	129

Total Semester Credit Hours 134

+ A grade of "C" or better is required in these courses.

Technical Electives must be from a list approved by the Computer Science department.

This list includes special topics classes - CS 4390 and CS 4371 - which can be repeated for credit; no more than two special topics classes can be counted toward the degree; i.e.:

- either one or two CS 4390s,
- or one or two CS 4371s,
- or one CS 4390 and one CS 4371.

Directed Electives 12 semester hours

Core Curriculum Requirements

- Visual and Performing Arts menu 3 semester hours
- Humanities menu 3 semester hours
- Social and Behavioral Sciences menu 3 semester hours
- Communication menu 3 semester hours
- Institutionally Designated Option 3 semester hours

Humanities/Social Science and Quantitative Science electives must be from the lists approved by the Computer Science department.

COLLEGE OF ENGINEEERING

General Information

Bachelors of Science Offered:

- Civil Engineering
- Computer Science
- Electrical Engineering
- Industrial Engineering
- Mechanical Engineering
- Metallurgical and Materials Engineering

Departments:

- Civil Engineering
- Computer Science
- Electrical and Computer Engineering
- Mechanical and Industrial Engineering
- Metallurgical and Materials Engineering

Dr. Andrew Swift, Dean
Dr. Stephen Stafford, Associate Dean
Dr. Pablo Arenaz, Associate Dean for Entering Students
Dr. Vijay Singh, Associate Dean for Research
Dr. Darrell Schroder, Assistant Dean

Engineering/Science Complex
Engineering Building, Room E230
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Fax: (915) 747-5616
E-mail: engineer@utep.edu

Bachelor of Science in Electrical Engineering

The Electrical Engineering program contains six concentrations. All concentrations are divided into two-year lower and upper divisions. The lower division provides diverse courses covering a broad base of technical subjects while the upper division provides the more specialized courses.

FRESHMAN YEAR			
1st Semester Hours			
CS	1401+	Introduction to Computer Science	4
ENGL	3111+	Expository English Composition	3
MATH	1411+	Calculus I	4
HIST	1301+	History of U.S. to 1865	3
COMM	1302+	Business and Professional Communications	3
		Total	17
2nd Semester			
MATH	1312+	Calculus II	3
UNIV	1301+	Seminar in Critical Inquiry **OR**	3
UNIV	2350 +	Interdisciplinary Technology & Society	3
CHEM	1306+	General Chemistry	3
ENGL	1312+	Research and Critical Writing	3
HIST	1302+	History of U. S. since 1865	3
EE	1110+	Measurements Laboratory	1
		Total	17

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SOPHOMORE YEAR			
1st Semester			
MATH	2313+	Calculus III	3
HIST	1302+	History of U. S. since 1865	3
POLS	2310+	Introduction to Politics	3
EE	2369+	Digital Systems Design I	3
PHYS	2410+	Mechanics and Thermal Physics	4
PHYS	1120+	Physics Laboratory I	1
		Total	18
2nd Semester			
EE	2351+	Networks I	3
EE	2110+	Basic EE Lab	1
MATH	2326+	Differential Equations	3
MATH	3323+	Matrix Algebra	3
PHYS	2411+	Fields and Waves	4
		Total	17

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JUNIOR YEAR			
1st Semester			
EE	3109	Computation Lab	1
EE	3339	Electronics I	3
EE	3352	Networks II	3
EE	3321	Electromagnetic Field Theory	3
EE	3376	Microprocessor Instrumentation	3
EE	3176	Microprocessor Instrumentation Lab	1
PHYS	3325	Survey of Modern Physics	3
		Total	17
2nd Semester			
EE	3210	Electrical Engineering Lab I	2
EE	3340	Electronics II	3
EE	3329	Electronic Devices	3
EE	3353	Signals and Systems	3
EE	3384	Probabilistic Methods	3
Core Curriculum Requirement*			3
		Total	17

SENIOR YEAR			
Two Semesters			
EE	4195	Senior Professional Orientation	1
EE	4220	Senior Project Lab I	2
EE	4210	Electrical Engineering Lab II	2
		or	
EE	4142	Digital Lab II	
		and	
EE	4178	Microprocessor and Interfacing Lab	
EE	4230	Senior Project Lab II	2
POLS	2311	American Government and Politics	3
Core Curriculum Requirement*			3

Core Curriculum Requirement*+		6
Concentration Courses *		12
Approved Technical electives*		3
Total		31
Total Semester Credit Hours	135	

+ A grade of "C" or better is required in these courses. * Nine hours of electives must be selected from University Core Curriculum courses. Three of these hours must be in visual and performing arts, three hours in humanities, and three hours in social and behavioral sciences. At least 12 hours must be selected from one of the concentrations described below. Approved technical electives must be selected from upper-level courses in Engineering or Computer Science or the Biological or Physical Sciences.

+0>Concentrations

Each concentration lists courses that permit students to develop a specialization or pursue particular career objectives. In satisfying the requirements of a concentration, students will complete an in-depth program of current interest to electrical engineering. Students should select a concentration prior to completion of the junior year and plan their course of study in order to satisfy any prerequisite for courses within their chosen concentration. Most concentration courses are offered only once each academic year. By careful selection of electives, students may obtain more depth in their chosen concentration or develop breadth in electrical engineering. Students may petition their advisor for course substitution within the concentration.

Concentration 1: General Electrical Engineering
This concentration provides students with a program of study that emphasizes the major areas within electrical engineering. This concentration is intended for students with broad interests in all aspects of electrical engineering. To fulfill the requirements of this concentration, a student should complete at least one course from four of the five groupings listed below.

1. EE 3385 Energy Conversion or 4364 Systems and Controls
2. EE 4347 Electromagnetic Energy Transmission and Radiation
3. EE 4341 Communication Systems or 4388 Digital Communications
4. EE 4350 Integrated Circuits and Semiconductor Devices
5. EE 4342/ 4142 Digital Systems Design II or 4378/4178 Microprocessor Systems II

Concentration 2: Computer Engineering
This concentration is concerned with the organization, design, and use of digital hardware. Students who satisfy the requirements of this concentration have the opportunity to be prepared to work in both the design and application of modern computing systems. To fulfill the requirements of this concentration, a student should complete EE 3372, EE 3474, and at least two of the five groupings of courses and labs listed below.

1. EE 4342 / 4142 Digital System Design II
2. EE 4372 Microcontroller Applications
3. EE 4375 VLSI Design I
4. EE 4378 / 4178 Microprocessor Systems II
5. EE 4379 Advanced Computer Architecture
6. EE 4365 Neural Networks

Concentration 3: Electromagnetic Engineering
This concentration emphasizes basic electromagnetic and other physical phenomena related to the generation, transmission, conversion, and reception of signals throughout the entire frequency spectrum. To fulfill the requirements of this concentration, a student should complete at least four of the courses listed below.

1. EE 4347 Electromagnetic Energy Transmission and Radiation
2. EE 4361 Fiber Optic Communications
3. EE 4380 Microwave Communications
4. EE 4381 Electro-optical Engineering
5. EE 4382 Antenna Engineering
6. EE 4386 Computational Methods in Electrical Engineering
7. EE 4389 High Resolution Radar

Concentration 4: Communications and Control Engineering
This concentration stresses analysis and design of systems for information transmission, control, and signal processing. Applications include industrial process control, communication systems, navigation and guidance systems, etc. To fulfill requirements for this concentration, students should complete at least four of the courses listed below.

1. EE 3385 Energy Conversion
2. EE 4341 Communication Systems
3. EE 4361 Fiber Optic Communications
4. EE 4364 Systems and Control
5. EE 4383 Digital Signal Processing

6. EE 4388 Digital Communications
7. EE 4365 Neural Networks

Concentration 5: Solid State Devices and Materials
This concentration provides students with the opportunity to study basic semiconductor devices and materials that have applications to a variety of electronic systems. To fulfill the requirements of this concentration, a student should complete at least four of the courses listed below.

1. EE 4350 Integrated Circuits and Semi-conductor Devices
2. EE 4361 Fiber Optic Communications
3. EE 4375 VLSI Design I
4. EE 4381 Electro-optical Engineering
5. PHYS 4355 Introductory Quantum Mechanics
6. PHYS 4356 Atoms, Molecules, and Solids

Concentration 6: Electronics Engineering
This concentration is designed to prepare students in the theoretical analysis, design, and testing of modern electronic circuits. To fulfill requirements of this concentration, a student should complete at least four of the courses listed below.

1. EE 4342 / 4142 Digital Systems Design II
2. EE 4350 Integrated Circuits and Semiconductor Devices
3. EE 4372 Microcontroller Applications
4. EE 4375 VLSI Design I
5. EE 4378 / 4178 Microprocessor Systems II
6. EE 4385 Biomedical Instrumentation

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Bachelor of Science in Industrial Enginering

The Industrial Engineering curriculum is designed for students who desire to enter industry or pursue advanced studies. The curriculum provides a broad range of courses in the areas of management of human resources, plant design, operations research, and quality control.

FRESHMAN YEAR			
1st Semester Hours			
CE	1305+	Graphic Fundamentals	3
ENGR	4101+	Introduction to Engineering	4
ENGL	3111+	Expository English Composition	3
MATH	4111+	Calculus I	4
CHEM	1305+	General Chemistry	3
CHEM	1105+	Chemistry Laboratory	1
		Total	18
2nd Semester			
HIST	1301+	History of U. S. to 1865	3
UNIV	1301+	Seminary in Critical Inquiry OR	3
UNIV	2350+	Interdisciplinary Technology and Society	3
ENGL	1312+	Research and Critical Writing	3
MATH	1312+	Calculus II	3
PHYS	2410+	Mechanics and Thermal Physics	4
PHYS	1120+	Physics Laboratory I	1
		Total	18

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SOPHOMORE YEAR			
1st Semester			
CE	2315+	Engineering Mechanics I	3
IE	2336+	Manufacturing Processes	3
MATH	2313+	Calculus III	3
PHYS	2411+	Fields and Waves	4
HIST	1302+	History of U. S. since 1865	3
		Total	16
2nd Semester			
CE	2334+	Mechanics of Materials	3
IE	2316+	Ergonomics	3
MATH	2326+	Differential Equations	3
MECH	2338+	Engineering Mechanics II	3
MECH	2341+	Engineering Analysis	3
Science Elective		GEOL 1301 BIOL 1305 CHEM 1306	3
		Total	18

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JUNIOR YEAR			
1st Semester			
MECH	3375 +	Thermodynamics I	3
IE	3326 +	Engineering Economy	3
MATH	3323	Matrix Algebra	3
IE	3320+	Prob. Models and Data Analysis	3
POLS	2310 +	Introduction to Politics	3
COMM	1302+	Business and Professional Communication	3
		Total	18
2nd Semester			
EE	3477	Basic Electrical Engineering	4
MECH	3454	Fluid Mechanics	4
POLS	2311+	American Government and Politics	3
IE	3389	Deterministic Operations Research	3
IE	3377+	Methods Engineering	3
		Total	17

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SENIOR YEAR			
1st Semester			
IE	4353	Industrial System Simulation	3
IE	4391	Production and Inventory Control	3
IE	4392	Probabilistic Operations Research	3
ECON	2304+	Principles of Economics	3
IE	4195	Senior Professional Orientation	3

		Total	15
2nd Semester			
ACCT	3309	Survey of Accounting	3
IE	4384	Industrial Layout	3
IE	4466	Senior Design	4
IE	4385	Statistical Quality Control and Reliability	3
Humanities elective [*+]			3
		Total	16
		Total Semester Credit Hours	136

[+] A grade of "C" or better is required in these courses.
[*] Select from ENGL 2311, ENGL 2312, ENGL 2315 or ENGL 2316.

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E-mail:
engineer@utep.edu

Bachelor of Science in Mechanical Engineering

The Mechanical Engineering curriculum is designed for students who desire to enter industry or pursue advanced studies. The curriculum provides a broad range of courses in the areas of thermal sciences, fluid mechanics, and mechanical design.

FRESHMAN YEAR			
1st Semester			
CE	1305+	Graphic Fundamentals	3
ENGR	1401+	Introduction Engineering	4
ENGL	1311+	Expository English Composition	3
MATH	1411+	Calculus I	4
CHEM	1305+	General Chemistry	3
CHEM	1105+	Chemistry Lab	1
		Total	18
2nd Semester			
HIST	1301	History of U. S. to 1865	3
UNIV	1301+	Seminary in Critical Inquiry OR	3
UNIV	2350+	Interdisciplinary Technology and Society	3
ENGL	1312+	Research and Critical Writing	3
MATH	1312+	Calculus II	3
PHYS	2410+	Mechanics and Thermal Physics	4
PHYS	1120+	Physics Laboratory I	1
		Total	18

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SOPHOMORE YEAR			
1st Semester			
CE	2315+	Engineering Mechanics I	3
MME	2303+	Introduction to Materials Science &Engineering	3
IE	2336+	Manufacturing Processes	3
MATH	2313+	Calculus III	3
PHYS	2411+	Fields and Waves	4
		Total	16
2nd Semester			
CE	2334+	Mechanics of Materials	3
HIST	1302	History of U. S. since 1865	3
MATH	2326+	Differential Equations	3
MECH	2338+	Engineering Mechanics II	3
MECH	2341+	Engineering Analysis	3
Science elective		GEOL 1301 BIOL 1305 or CHEM 1306	3
		Total	18

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JUNIOR YEAR			
1st Semester			
MECH	3375+	Thermodynamics I	3
MECH	3305	Basic Measurements and Instrumentation	3
IE	3320+	Prob. Models & Engineering Data Analysis	3
IE	3326	Engineering Economy	3
COMM	1302+	Business and Professional Communication	3
POLS	2310 +	American Government and Politics	3
		Total	18
2nd Semester			
EE	3477	Basic Electrical Engineering	4
MECH	4364	Mechanical Design	4
MECH	3454	Fluid Mechanics	3
Humanities Elective+			3
POLS +	2311	American Government and Politics	3
		Total	17

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SENIOR YEAR			
1st Semester			
MECH	3363	Kinematics of Mechanisms	3
MECH	3365	Dynamic Response	3
MECH	3376	Thermodynamics II	3
Technical Elective*		ME or IE course from list below	3
Visual and Performing Arts Elective+			3
		Total	15

2nd Semester			
MECH	4451	Heat Transfer	4
MECH	4311	Automatic Controls	3
MECH	4111	Controls Laboratory	1
MECH	4466	Senior Design	4
MECH	4195	Senior Professional Orientation	1
Social and Behavioral Sciences elective[+]			3
		Total	18
		Total Semester Credit Hours 135	

[+] A grade of "C" or better is required.

[*] Approved technical electives are MECH 3455, MECH 3456, MECH 4368, MECH 4371, MECH 4395; IE 3377, IE 4332, IE 4384, IE 4385.

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Engineering Building, Room E230
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E-mail:
engineer@utep.edu

Bachelor of Science in Metallurgical and Materials Engineering

The Mechanical Engineering curriculum is designed for students who desire to enter industry or pursue advanced studies. The curriculum provides a broad range of courses in the areas of thermal sciences, fluid mechanics, and mechanical design.

FRESHMAN YEAR			
First Semester Hours			
ENGL	1311+	Expository English Composition	3
MATH	1411+	Calculus I	4
CHEM	1305+	General Chemistry	3
CHEM	1105+	Chemistry Lab	1
HIST	1301 +	History of U.S. to 1865	3
ENGR	1401+	Introduction to Engineering and Design	4
		Total	18
2nd Semester			
ENGL	1312+	Research & Critical Writing	3
MATH	1312+	Calculus II	3
CHEM	1306+	General Chemistry	3
CHEM	1106+	Chemistry Lab	1
HIST	1302 +	History of U.S. since 1865	3
UNIV	mme4102 1301+	Seminar in Critical Inquiry	3
		Total	17

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SOPHOMORE YEAR			
Third Semester			
POLS	2310+	Introduction to Politics	3
MATH	2313+	Calculus III	3
PHYS	2410+	Mechanics & Thermal Physics	4
PHYS	1210+	Physics Lab	1
CE	2315+	Mechanics I	3
COMM 1301+ or COMM 1302 +			3
		Total	17
Fourth Semester			
POLS	2311 +	American Government and Politics	3
MATH	2326+	Differential Equations	3
PHYS	2411+	Fields & Waves	4
PHYS	1121+	Physics Lab	1
MME	2303+	Introduction to Material Science and Engr.	3
CE	2334+	Mechanics of Materials	3
		Total	17

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JUNIOR YEAR			
Fifth Semester			
EE	3477+	Introduction to Electrical Engineering	4
MME	3305+	Material & Energy Balance	3
MME	3406+	Physical Metallurgy	4
Social & Behavioral Science Elective+ [1]			3
Science elective[4+]			3
		Total	17
Sixth Semester			
MME	3306+	Transport Phenomena	3
MME	3308+	Applied Thermodynamics	3
MME	3407+	Mech. Behavior of Materials	4
Humanities elective [1] +			3
Visual & Performing Arts elective+			3
		Total	16

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SENIOR YEAR			
Seventh Semester			
MME	3309	Electronic Materials Science	3
MME	3403	Metals Processing	3
IE	3326	Engineering Economy	3
MME	1495	Senior Prof. Orientation	1
MME elective[3]			3
MATH elective[2]			3
		Total	16

Eighth Semester			
MME	4413	Structural Characterization	4
MME	4404	Materials Processing	4
MME	4419	Met. & Materials Design	4
ITS	3350	Technology and Society	3
MME elective [3]			3
		Total	18
		Total Semester Credit Hours 136	

[+] A grade of "C" or better is required. A "C" or better is required in MME courses through the junior year.

[1] Check current list of approved humanities/fine arts electives.

[2] Approved math electives are EE 4384, IE 2330, MATH 3323, MATH 3335, or a MATH course approved by advisor.

[3] Electives offered are Advanced Electronic Materials Science (3310), Composite Materials (3314), Engineering Alloys (3321), Corrosion (4309), Polymer Engineering (4310), Materials Fabrication (4405), Failure Analysis (4316), and High Temperature Materials Science (4320).

[4] CHEM 3324, CHEM 3325, CHEM 3321 , CHEM 3322, CHEM 3351, CHEM 3351, CHEM 3352, PHYS 3325, or an upper-division chemistry or physics course approved by advisor.

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The Industrial Engineering curriculum is designed for students who desire to enter industry or pursue advanced studies. The curriculum provides a broad range of courses in the areas of management of human resources, plant design, operations research, and quality control.

FRESHMAN YEAR			
1st Semester Hours			
CE	1305+	Graphic Fundamentals	3
ENGR	4101+	Introduction to Engineering	4
ENGL	3111+	Expository English Composition	3
MATH	4111+	Calculus I	4
CHEM	1305+	General Chemistry	3
CHEM	1105+	Chemistry Laboratory	1
		Total	18
2nd Semester			
HIST	1301+	History of U. S. to 1865	3
UNIV	1301+	Seminary in Critical Inquiry OR	3
UNIV	2350+	Interdisciplinary Technology and Society	3
ENGL	1312+	Research and Critical Writing	3
MATH	1312+	Calculus II	3
PHYS	2410+	Mechanics and Thermal Physics	4
PHYS	1120+	Physics Laboratory I	1
		Total	18

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SOPHOMORE YEAR			
1st Semester			
CE	2315+	Engineering Mechanics I	3
IE	2336+	Manufacturing Processes	3
MATH	2313+	Calculus III	3
PHYS	2411+	Fields and Waves	4
HIST	1302+	History of U. S. since 1865	3
		Total	16
2nd Semester			
CE	2334+	Mechanics of Materials	3
IE	2316+	Ergonomics	3
MATH	2326+	Differential Equations	3
MECH	2338+	Engineering Mechanics II	3
MECH	2341+	Engineering Analysis	3
Science Elective		GEOL 1301 BIOL 1305 CHEM 1306	3
		Total	18

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JUNIOR YEAR			
1st Semester			
MECH	3375 +	Thermodynamics I	3
IE	3326 +	Engineering Economy	3
MATH	3323	Matrix Algebra	3
IE	3320+	Prob. Models and Data Analysis	3
POLS	2310 +	Introduction to Politics	3
COMM	1302+	Business and Professional Communication	3
		Total	18
2nd Semester			
EE	3477	Basic Electrical Engineering	4
MECH	3454	Fluid Mechanics	4
POLS	2311+	American Government and Politics	3
IE	3389	Deterministic Operations Research	3
IE	3377+	Methods Engineering	3
		Total	17

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SENIOR YEAR			
1st Semester			
IE	4353	Industrial System Simulation	3
IE	4391	Production and Inventory Control	3
IE	4392	Probabilistic Operations Research	3
ECON	2304+	Principles of Economics	3
IE	4195	Senior Professional Orientation	3
		Total	15
2nd Semester			
ACCT	3309	Survey of Accounting	3
IE	4384	Industrial Layout	3
IE	4466	Senior Design	4
IE	4385	Statistical Quality Control and Reliability	3
Humanities elective *+			3
		Total	16
		Total Semester Credit Hours 136	

+ A grade of "C" or better is required in these courses.
* Select from ENGL 2311, ENGL 2312, ENGL 2315 or ENGL 2316.

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Civil Engineering

201B Engineering Science Complex
Phone: (915) 747-5464
E-mail: civilengineering@utep.edu

CHAIRPERSON: Carlos M. Ferregut
PROFESSORS EMERITI: Howard G. Applegate, Herbert H. Bartell
PROFESSORS: Ferregut, Nazarian, Oey, Osegueda, Tarquin, Turner
ASSOCIATE PROFESSORS: Li, Rozendal, Walton
ASSISTANT PROFESSORS: Ashur, Tandon

Civil Engineering Courses (CE)

1305 Graphic Fundamentals in Engineering Design (2-4) (Common Course Number ENGR 1304)
Freehand projection, fundamentals of multiview projections, auxiliaries, sections, detailed drawings, and dimensioning, pictorials and computer-aided drafting. Laboratory fee required.

1403 Introduction to Civil Engineering (3-3)
A general introduction to the field of civil engineering and the engineer's responsibilities to society. The class includes procedures for solving engineering and design problems with computational tools and statistical concepts. The class includes a three hour lab each week where the student learns to utilize the computer as an engineering tool, prepares a team design project, and visits engineering facilities.

2315 Engineering Mechanics I (3-0) (Common Course Number ENGR 2301)
Forces in space, equilibrium of particles and rigid bodies, friction, centroids, and centers of gravity. Prerequisite: MATH 1411 with a grade of "C" or better.

2334 Mechanics of Materials I (3-0) (Common Course Number ENGR 2332)
Study of stress, strain, torsion, shear, moment, flexure, combined stresses, and column action. Prerequisite: CE 2315 with a grade of "C" or better.

General Prerequisite: Junior standing in Civil Engineering or written permission of the instructor for all 3000-4000-level courses.

3136 Engineering Materials Laboratory (0-3)
Laboratory practice in manufacture and testing of concrete, steel, wood, and plastic specimens; instrumentation work in the measurement of stresses and strains. Prerequisite: CE 2334 with a grade of "C" or better. Laboratory fee required.

3313 Engineering Measurements (2-3)
Theory and practice of surveying measurements with emphasis on precision, errors, and significant figures, the use of the level, transit, and engineer's tape. Prerequisites: CE 1305 and CS 1420, each with a grade of "C" or better. Laboratory fee required.

3325 Environmental Engineering Fundamentals (3-0)
Introduction to the engineering aspects of environmental systems to include such topics as water quality management, air pollution and control, solid and hazardous waste management, environmental impact assessment, and governmental regulation. Prerequisite: Junior standing in engineering or science.

3343 Structural Analysis (3-0)
A study of framed structures, trusses, girders, and beams including applications of static and moving loads on bridges. Prerequisite: CE 2334 with a grade of "C" or better.

3373 Probability, Statistics, and Decision Models for Civil Engineers (3-0)
Applications of statistical methods in structural, geotechnical, environmental, and transportation engineering data. Development of probabilistic models for winds, hydrologic precipitation, and other natural variables. Statistical decision models for engineering design. Prerequisite: MATH 1411 with a grade of "C" or better.

3490 Introduction to Air Pollution (3-3)
Classification of air pollutants and their effects on man, animals, plants, and the environment; meteorological aspects of air pollution; sources of air pollution; plume characteristics; units of measurement; physical properties of dusts, gases, and aerosols. Prerequisites: Junior standing in engineering or sciences and instructor approval. Laboratory fee required.

4153 Water and Waste Laboratory (0-3)
Laboratory analysis of water and wastes. Corequisite: Concurrent enrollment in CE 4341 or CE 4342. Laboratory fee required.

4171 Engineering Problems (0-0-1)
4271 Engineering Problems (0-0-2)

4371 Engineering Problems (0-0-3)
Original investigation of special problems in the student's field, the problem to be selected by the student with the approval of the head of the department. May be repeated for credit. Prerequisites: Senior standing and department approval.

4181 Co-op Work Experiences (0-0-1)
4182 Co-op Work Experiences (0-0-1)

4183 Co-op Work Experiences (0-0-1)
Work experience in business, industrial, governmental, professional, service, or other organizations to provide on-the- job training and professional preparation in the student's area of interest. A report covering the work experience must be submitted by the student to the departmental Co-op coordinator at the end of each work period. Upon completion of his or her third work period and submission of a report summarizing the total work experience, a student can use three hours of Co-op Work Experience in his or her degree plan in place of a technical elective or elective in the major. Prerequisite: Selection by the Co-op Coordinator, department chairperson, and employer.

4195 Senior Professional Orientation (1-0)
Introduction to the Engineering profession with emphasis on job placement, professional ethics, and an engineering field examination. Required of all students prior to graduation.

4335 Structural Design I (3-0)
Reinforced concrete theory; design of beams, columns, slabs, footings, and retaining walls using current design specifications. Prerequisites: CE 3343 and CE 3136.

4340 Transportation Engineering (3-0)
Study of planning, economics, finance, location, design, and administration of transportation systems. Prerequisite: CE 3313; CE 3313 may be taken concurrently with CE 4340.

4341 Water Supply Engineering (3-0)
principles of water supply engineering and the application of those to the design and operation of municipal and industrial water systems. Prerequisites: ie 3326 and mech 3454.

4342 Wastewater Engineering (3-0)
Principles of wastewater collection, treatment, and disposal and their application to the design and operation of municipal and industrial wastewater systems. Prerequisites: IE 3326 and MECH 3454.

4349 Foundation Engineering (3-0)
Subsoil exploration, spread footings, mat foundations, retaining walls, sheet pile structures, braced cuts, pile foundations, and cassions. Prerequisite: CE 4448.

4355 Pavement Material Characterization (3-0)
Asphalt cement, aggregates, hot mix, and asphalt mix design. Characterization of asphalt mixture. Mechanical modification of soils. Modification of soils by admixtures. Prerequisite: Instructor approval.

4361 Structural Design II (3-0)
Design of steel structures including the application of plastic design methods using current design specifications. Prerequisite: CE 3343.

4388 Senior Design (1-6)
Conceptual, preliminary, and final design projects. Prerequisites: Department approval and minimum of 115 hours of Civil Engineering Curriculum completed. Laboratory fee required.

4448 Soil Mechanics (3-3)
Physical and mechanical properties of soils, plasticity, shrinkage, permeability, seepage, consolidation, shear strength, Rankine and Coulomb earth pressure, and braced cuts. Prerequisites: CE 2334 2334 with a grade of "C" or better, MECH 3454, and GEOL 3321. Laboratory fee required.

4456 Hydraulic Engineering (3-3)
Essential principles of hydraulics and hydrology demonstrated in the laboratory and applied to the design of hydraulic structures. Prerequisite: MECH 3454. Laboratory fee required.

4460 Structural Analysis II (3-3)
Analysis of statically indeterminate structures including continuous beams and frames. Prerequisite: CE 3343 with a grade of "C" or better.

4470 Mechanics of Materials II (3-3)
Analysis of problems dealing with energy methods, curved bars, torsion of noncircular sections, fatigue, stress concentration, stress and strain, and experimental methods of stress determination. Prerequisites: CE 2334 with a grade of "C" or better and Senior standing.

See the Graduate Studies Catalog for graduate programs and courses.

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Engineering/Science Complex
Engineering Building, Room E230
Phone: (915) 747-5460
Fax: (915) 747-5616
E-mail:
engineer@utep.edu

Computer Science

234 Computer Science Building
Phone: (915) 747-5480
Fax: (915) 747-5030
Website: http://cs.utep.edu

CHAIRPERSON: David Novick
PROFESSORS: Bernat, Gelfond, Kreinovich
ASSOCIATE PROFESSORS: Ewton, Longpré
ASSISTANT PROFESSORS: Gates, Teller
LECTURER: Bell

Computer Science (CS)

1310 Introduction to Computer Programming (3-0)(Common Course Number COSC 1301 1301)
Fundamentals of computers including software, hardware, impact on society, and beginning programming in a high- level language, such as PASCAL. Designed for students not engaged in mathematically oriented studies.

1401 Introduction to Computer Science (3-3)(Common Course Number COSC 1430)
An introduction to computers, impact of computing, problem solving, programming environments including editors, compilers, and loaders, and to elementary PASCAL through arrays. Prerequisite to all other courses for the major in Computer Science. Prerequisite: MATH 1410 or MATH 1508, with a grade of "C" or better.

1420 Computer Programming for Scientists and Engineers (3-3)(Common Course Number COSC 1405)
Introduction to computers and problem solving with digital computers. A procedural programming language will be utilized to solve scientific and engineering oriented problems. Visualization methods will also be used to provide an experimental approach to problem solving. Prerequisite: MATH 1410 or MATH 1508, with a grade of "C" or better.

2302 Data Structures (3-0)(Common Course Number COSC 2318)
Abstract data types, representation of data using sets, lists, trees, and graphs. Storage allocation and collection techniques. Prerequisites: CS 2401 and MATH 2300.

2401 Programming and Algorithms (3-3) (Common Course Number COSC 1418)
Continuation of CS 1401 1401, including the remainder of the PASCAL language. Introduction to algorithmic analysis including searching, sorting, string processing, and recursion. Prerequisite: CS 1401.

3320 Introduction to Computer Architecture (3-0)
The organization and structuring of the major hardware components of computers; the mechanics of information transfer and control within a digital computer system; the fundamentals of logic design; machine instructions; addressing techniques. Prerequisite: CS 3432 3432.

3320 Problem Oriented Programming Languages (3-0)
A detailed study of one or more modern programming languages (C, Ada, Module-2, LISP, PROLOG, etc.), which is of particular value in a student's area of interest. Languages will be taught in rotation. May be repeated once for credit as a technical elective when the application area of the programming language differs. Prerequisite: CS 2302 or CS 3333.

3333 Basic Concepts in Computer Science (3-0)
Introduction to the fundamentals of data types (lists, trees, sets, graphs, etc.), searching and sorting, context- free languages, finite automata, and Turing Machines. May not be counted toward the major in Computer Science. Prerequisite: CS 1420 or CS 1401.

3335 Systems Programming (3-0)
The design and implementation of the programming environment including editors, compilers, loaders and linkers, debuggers and operating systems. Prerequisite: CS 2302 or CS 3333

3350 Automata, Computability, and Formal Languages (3-0)
Languages and their grammars. Chomski's classification of abstract languages. The connections between languages, machines, and neural networks. Finite and

infinite automata; their structure, capabilities, and limitation. Prerequisite: CS 2302 or CS 3333.

3360 Design and Implementation of Programming Languages (3-0)
Design features of modern programming languages including flow control mechanism and data structures; techniques for implementation of these features. Prerequisite: CS 2302 or CS 3333

3370 Computer Graphics (3-0)
An introduction to representation and display of graphical information including line, character, and curve generation. Emphasis on two-dimensional techniques. Prerequisite: (1) CS 2302 or (2) CS 3333 and MATH 3323.

3432 Assembler Language Programming (3-3)
Symbolic coding of instructions and data, macro definition and use, subroutines and linkage, input/output handling at the assembly level, and the structure of assemblers. Prerequisite: CS 2302 or CS 3333.

4195 Senior Professional Orientation (1-0)
Introduction to the Computer Science profession with emphasis on job placement and professional ethics. Senior standing in Computer Science. Required of all students prior to graduation. Offered in the Fall semester only.

4310 Software Engineering I (3-0)
Design techniques including top-down design and development, information security, and stepwise refinement. Organizing and managing software system development including milestones, estimating, teams, walk-throughs, and documentation. Prerequisite: Senior standing.

4311 Software Engineering II (3-0)
Implementation of the project designed in CS 3410 providing practical experience in the design and implementation of large programming projects. Prerequisite: CS 4310.

4320 Artificial Intelligence (3-0)
Introduction to basic concepts and techniques of artificial intelligence including knowledge representation, search strategies, symbolic logic, expert systems, and applications. Prerequisite: CS 3350 or CS 3333.

4342 Database Management (3-0)
Introduction to data base concepts, hierarchical, network and relational data models, data description and query languages, file and index organization, and file security and integrity. Both mainframe and small computer approaches will be covered. Prerequisite: CS 2302 or CS 3333 .

4352 Translation of Programming Languages (3-0)
The structure of compilers and interpreters. Lexical analysis, syntax analysis, and formal description of programming languages. Semantic analysis, intermediate languages, and optimization. Compiler writing languages and bootstrapping. Prerequisite: CS 3333 or CS 3350.

4365 Topics in Soft Computing (3-0)
Introduction to basic concepts and techniques of soft computing, including neural, fuzzy, evolutionary, and interval computations, and their applications. This course may be repeated for credit when topic varies. Prerequisites: EE 3384 or STAT 3320 and MATH 3429.

4371 Computer Science Problems (0-0-3)
Original investigation of special problems in the student's area of interest, the problem being selected by the student in consultation with the instructor and with the permission of the Chairperson of the Computer Science Department. May be repeated for credit. Prerequisites: Senior standing in Computer Science and department approval.

4375 Theory of Operating Systems (3-0)
Topics include multiprocessing, time sharing and real time systems, scheduling and resource allocation, virtual memory, paging and segmentation, and file management. Prerequisite: CS 3335 or CS 3330 3320.

4390 Special Topics in Computer Science (3-0)
Selected topics of current interest in Computer Science. May be repeated for credit when topic varies. Prerequisites: Senior standing in Computer Science and department approval.

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Engineering Building, Room E230
Phone: (915) 747-5460
Fax: (915) 747-5616
E-mail: engineer@utep.edu

Bachelor of Science in Electrical Engineering

The Electrical Engineering program contains six concentrations. All concentrations are divided into two-year lower and upper divisions. The lower division provides diverse courses covering a broad base of technical subjects while the upper division provides the more specialized courses.

FRESHMAN YEAR			
1st Semester Hours			
CS	1401+	Introduction to Computer Science	4
ENGL	3111+	Expository English Composition	3
MATH	1411+	Calculus I	4
HIST	1301+	History of U.S. to 1865	3
COMM	1302+	Business and Professional Communications	3
		Total	17
2nd Semester			
MATH	1312+	Calculus II	3
UNIV	1301+	Seminar in Critical Inquiry **OR**	3
UNIV	2350 +	Interdisciplinary Technology & Society	3
CHEM	1306+	General Chemistry	3
ENGL	1312+	Research and Critical Writing	3
HIST	1302+	History of U. S. since 1865	3
EE	1110+	Measurements Laboratory	1
		Total	17

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SOPHOMORE YEAR			
1st Semester			
MATH	2313+	Calculus III	3
HIST	1302+	History of U. S. since 1865	3
POLS	2310+	Introduction to Politics	3
EE	2369+	Digital Systems Design I	3
PHYS	2410+	Mechanics and Thermal Physics	4
PHYS	1120+	Physics Laboratory I	1
		Total	18
2nd Semester			
EE	2351+	Networks I	3
EE	2110+	Basic EE Lab	1
MATH	2326+	Differential Equations	3
MATH	3323+	Matrix Algebra	3
PHYS	2411+	Fields and Waves	4
		Total	17

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JUNIOR YEAR			
1st Semester			
EE	3109	Computation Lab	1
EE	3339	Electronics I	3
EE	3352	Networks II	3
EE	3321	Electromagnetic Field Theory	3
EE	3376	Microprocessor Instrumentation	3
EE	3176	Microprocessor Instrumentation Lab	1
PHYS	3325	Survey of Modern Physics	3
		Total	17
2nd Semester			
EE	3210	Electrical Engineering Lab I	2
EE	3340	Electronics II	3
EE	3329	Electronic Devices	3
EE	3353	Signals and Systems	3
EE	3384	Probabilistic Methods	3
Core Curriculum Requirement*			3
		Total	17

SENIOR YEAR			
Two Semesters			
EE	4195	Senior Professional Orientation	1
EE	4220	Senior Project Lab I	2

EE	4210	Electrical Engineering Lab II	2
		or	
EE	4142	Digital Lab II	
		and	
EE	4178	Microprocessor and Interfacing Lab	
EE	4230	Senior Project Lab II	2
POLS	2311	American Government and Politics	3
Core Curriculum Requirement*			3
Core Curriculum Requirement*+			6
Concentration Courses *			12
Approved Technical electives*			3
		Total	31
		Total Semester Credit Hours 135	

+ A grade of "C" or better is required in these courses. * Nine hours of electives must be selected from University Core Curriculum courses. Three of these hours must be in visual and performing arts, three hours in humanities, and three hours in social and behavioral sciences. At least 12 hours must be selected from one of the concentrations described below. Approved technical electives must be selected from upper-level courses in Engineering or Computer Science or the Biological or Physical Sciences.

+0>Concentrations

Each concentration lists courses that permit students to develop a specialization or pursue particular career objectives. In satisfying the requirements of a concentration, students will complete an in-depth program of current interest to electrical engineering. Students should select a concentration prior to completion of the junior year and plan their course of study in order to satisfy any prerequisite for courses within their chosen concentration. Most concentration courses are offered only once each academic year. By careful selection of electives, students may obtain more depth in their chosen concentration or develop breadth in electrical engineering. Students may petition their advisor for course substitution within the concentration.

Concentration 1: General Electrical Engineering
This concentration provides students with a program of study that emphasizes the major areas within electrical engineering. This concentration is intended for students with broad interests in all aspects of electrical engineering. To fulfill the requirements of this concentration, a student should complete at least one course from four of the five groupings listed below.

1. EE 3385 Energy Conversion or 4364 Systems and Controls
2. EE 4347 Electromagnetic Energy Transmission and Radiation
3. EE 4341 Communication Systems or 4388 Digital Communications
4. EE 4350 Integrated Circuits and Semiconductor Devices
5. EE 4342/ 4142 Digital Systems Design II or 4378/4178 Microprocessor Systems II

Concentration 2: Computer Engineering
This concentration is concerned with the organization, design, and use of digital hardware. Students who satisfy the requirements of this concentration have the opportunity to be prepared to work in both the design and application of modern computing systems. To fulfill the requirements of this concentration, a student should complete EE 3372, EE 3474, and at least two of the five groupings of courses and labs listed below.

1. EE 4342 / 4142 Digital System Design II
2. EE 4372 Microcontroller Applications
3. EE 4375 VLSI Design I
4. EE 4378 / 4178 Microprocessor Systems II
5. EE 4379 Advanced Computer Architecture
6. EE 4365 Neural Networks

Concentration 3: Electromagnetic Engineering
This concentration emphasizes basic electromagnetic and other physical phenomena related to the generation, transmission, conversion, and reception of signals throughout the entire frequency spectrum. To fulfill the requirements of this concentration, a student should complete at least four of the courses listed below.

1. EE 4347 Electromagnetic Energy Transmission and Radiation
2. EE 4361 Fiber Optic Communications
3. EE 4380 Microwave Communications
4. EE 4381 Electro-optical Engineering
5. EE 4382 Antenna Engineering
6. EE 4386 Computational Methods in Electrical Engineering
7. EE 4389 High Resolution Radar

Concentration 4: Communications and Control Engineering
This concentration stresses analysis and design of systems for information transmission, control, and signal processing. Applications include industrial

process control, communication systems, navigation and guidance systems, etc. To fulfill requirements for this concentration, students should complete at least four of the courses listed below.

1. EE 3385 Energy Conversion
2. EE 4341 Communication Systems
3. EE 4361 Fiber Optic Communications
4. EE 4364 Systems and Control
5. EE 4383 Digital Signal Processing
6. EE 4388 Digital Communications
7. EE 4365 Neural Networks

Concentration 5: Solid State Devices and Materials
This concentration provides students with the opportunity to study basic semiconductor devices and materials that have applications to a variety of electronic systems. To fulfill the requirements of this concentration, a student should complete at least four of the courses listed below.

1. EE 4350 Integrated Circuits and Semi-conductor Devices
2. EE 4361 Fiber Optic Communications
3. EE 4375 VLSI Design I
4. EE 4381 Electro-optical Engineering
5. PHYS 4355 Introductory Quantum Mechanics
6. PHYS 4356 Atoms, Molecules, and Solids

Concentration 6: Electronics Engineering
This concentration is designed to prepare students in the theoretical analysis, design, and testing of modern electronic circuits. To fulfill requirements of this concentration, a student should complete at least four of the courses listed below.

1. EE 4342 / 4142 Digital Systems Design II
2. EE 4350 Integrated Circuits and Semiconductor Devices
3. EE 4372 Microcontroller Applications
4. EE 4375 VLSI Design I
5. EE 4378 / 4178 Microprocessor Systems II
6. EE 4385 Biomedical Instrumentation

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Fax: (915) 747-5616
E-mail: engineer@utep.edu

Bachelor of Science in Mechanical Engineering

The Mechanical Engineering curriculum is designed for students who desire to enter industry or pursue advanced studies. The curriculum provides a broad range of courses in the areas of thermal sciences, fluid mechanics, and mechanical design.

FRESHMAN YEAR			
1st Semester			
CE	1305+	Graphic Fundamentals	3
ENGR	1401+	Introduction Engineering	4
ENGL	1311+	Expository English Composition	3
MATH	1411+	Calculus I	4
CHEM	1305+	General Chemistry	3
CHEM	1105+	Chemistry Lab	1
		Total	18
2nd Semester			
HIST	1301	History of U. S. to 1865	3
UNIV	1301+	Seminary in Critical Inquiry	3
		OR	
UNIV	2350+	Interdisciplinary Technology and Society	3
ENGL	1312+	Research and Critical Writing	3
MATH	1312+	Calculus II	3
PHYS	2410+	Mechanics and Thermal Physics	4
PHYS	1120+	Physics Laboratory I	1
		Total	18

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SOPHOMORE YEAR			
1st Semester			
CE	2315+	Engineering Mechanics I	3
MME	2303+	Introduction to Materials Science &Engineering	3
IE	2336+	Manufacturing Processes	3
MATH	2313+	Calculus III	3
PHYS	2411+	Fields and Waves	4
		Total	16
2nd Semester			
CE	2334+	Mechanics of Materials	3
HIST	1302	History of U. S. since 1865	3
MATH	2326+	Differential Equations	3
MECH	2338+	Engineering Mechanics II	3
MECH	2341+	Engineering Analysis	3
Science elective		GEOL 1301 BIOL 1305 or CHEM 1306	3
		Total	18

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JUNIOR YEAR			
1st Semester			
MECH	3375+	Thermodynamics I	3
MECH	3305	Basic Measurements and Instrumentation	3
IE	3320+	Prob. Models & Engineering Data Analysis	3
IE	3326	Engineering Economy	3
COMM	1302+	Business and Professional Communication	3
POLS	2310 +	American Government and Politics	3
		Total	18
2nd Semester			
EE	3477	Basic Electrical Engineering	4
MECH	4364	Mechanical Design	4
MECH	3454	Fluid Mechanics	3
Humanities Elective+			3
POLS +	2311	American Government and Politics	3
		Total	17

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SENIOR YEAR			
1st Semester			
MECH	3363	Kinematics of Mechanisms	3
MECH	3365	Dynamic Response	3
MECH	3376	Thermodynamics II	3
Technical Elective* ME or IE course from list below			3
Visual and Performing Arts Elective+			3
		Total	15
2nd Semester			
MECH	4451	Heat Transfer	4
MECH	4311	Automatic Controls	3
MECH	4111	Controls Laboratory	1
MECH	4466	Senior Design	4
MECH	4195	Senior Professional Orientation	1
Social and Behavioral Sciences elective+			3
		Total	18
		Total Semester Credit Hours 135	

+ A grade of "C" or better is required.

* Approved technical electives are MECH 3455, MECH 3456, MECH 4368, MECH 4371, MECH 4395; IE 3377, IE 4332, IE 4384, IE 4385.

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Engineering Building, Room E230
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Fax: (915) 747-5616
E-mail: engineer@utep.edu

Metallurgical and Materials Engineering

M201 Engineering Science Complex
Phone: (915) 747-5468
E-mail: metal@utep.edu

CHAIRPERSON: Lawrence E. Murr
PROFESSOR EMERITUS: Lonnie L. Abernethy
PROFESSORS: Bronson, Fisher, McClure, Murr, Stafford, Varma
ASSOCIATE PROFESSOR: Arrowood
LECTURER: Quinones

Metallurgical and Materials Engineering (MME)

General Prerequisite: Junior standing for all 3000 or 4000-level courses.

1401 1401 Introduction to Engineering Calculations (3-3)
Report writing, introduction to computers including DOS, word processing, spreadsheets, and problem solving techniques, including graphing, curve fitting, least square analysis, simultaneous equation solution, polynomial curve solution, and statistics. Prerequisites: ENGL 1311 1311, and MATH 1410 or MATH 1508, each with a grade of "C" or better. ENGL 1311 1311, MATH 1410, or MATH 1508 may be taken concurrently with MME 1401 1401.

1402 Introduction to Engineering Calculations and Design (3-3)
Engineering functions, ethics and responsibility, computer-based problem solving, and introduction to engineering economy, electrical circuits, material balance, material properties, energy and mechanics with design projects and computer applications. Prerequisites: MME 1401 1401 and MATH 1411 1411, each with a grade of "C" or better. MATH 1411 1411 may be taken concurrently with MME 1402.

2303 Introduction to Materials Science and Engineering (3-0)
An introduction to the relationship between structure and composition and the mechanical, chemical, electrical, optical, magnetic, and thermal properties of metals, ceramics, polymers, and composites. Emphasis is placed on the selection and application of materials for a variety of engineering applications. Prerequisite: CHEM 1305 1305 with a grade of "C" or better.

3305 Material and Energy Balance in Materials Systems (3-0)
Introduction to process variables, stoichiometry, materials balance, first law of thermodynamics, and energy balance applied to materials systems. Prerequisite: MME 1402, CHEM 1306 1306, and MATH 2326 2326, each with a grade of "C" or better.

3306 Rate Processes in Materials Systems (3-0)
Introduction to reaction kinetics, fluid flow, and heat transfer applied to materials systems. Prerequisites: MME 1402, CHEM 1306 1306, and MATH 2326 2326 or MATH 3326, each with a grade of "C" or better.

3308 Applied Chemical Thermodynamics (3-0)
First, second, and third law of thermodynamics applied to materials systems. Topics include thermochemistry, chemical equilibria, phase equilibria, solutions, activity, and electrochemical potential. Prerequisite: MME 3305 with a grade of "C" or better

3309 Introduction to Electronic Materials Science (3-0)
Basic theory of the electrical, semiconductor, magnetic, optical, and superconductor properties of materials. Application and fabrication of selected materials. Prerequisite: PHYS 2411 2411 with a grade of "C" or better.

3310 Advanced Electronic Materials Science (3-0)
Basic theory, applications, and fabrication of semiconductors, p-n junctions, and solid state devices such as junction transistors, photovoltaics, and light emitting diodes with emphasis on the material properties of silicon and gallium arsenide. Prerequisites: PHYS 2411 2411 and MME 3309, each with a grade of "C" or better.

3314 Composite Materials (3-0)
Introduction to fiber-reinforced materials. Manufacturing technology for strong fibers and whiskers. Mechanical performance, design, and manufacturing of composite products. Adhesion, interfacial shear, and critical fiber length. Anisotropic plane-stress elasticity; multiaxial strength of anisotropic materials. Classical theory of laminates. Delamination and other performance problems.

Prerequisites: CE 2334 2334 and MME 2303, each with a grade of "C" or better.

3321 3321 Engineering Alloys (3-0)
The study of the selection and specification of engineering alloys for use in industrial applications. Topics related to ferrous and non-ferrous metals in the cast, wrought, powder, and particle state will be covered. Prerequisite: MME 3407 with a grade of "C" or better or instructor approval.

3406 Physical Metallurgy (4-0)
The underlying principles of physical metallurgy dealing with the structure-property relationships will be covered. Topics will include crystal structures and defects, solid solutions, deformation and annealing, diffusion, phase equilibria, nucleation and growth, phase diagrams, solidification, and phase analysis. Prerequisite: MME 2303 with a grade of "C" or better.

3407 Mechanical Behavior of Materials (3-3)
The microstructure-property relationships will be emphasized in this course. The deformation processes for metals, ceramics, polymers, and composite materials will be analyzed in terms of current theories and models. The topics include twinning, martensite, fracture, dislocation theory, plastic deformation, creep, fatigue, strengthening mechanism, and mechanical testing. Prerequisite: MME 2303 with a grade of "C" or better. Laboratory fee required.

4171 Engineering Problems (0-0-1)
4271 Engineering Problems (0-0-2)

4371 Engineering Problems (0-0-3)
Original investigation of special problems in the student's field, the problem to be selected by the student with the approval of the head of the department. May be repeated for credit. Prerequisites: Senior standing and department approval.

4175 Undergraduate Research in Metallurgy (0-0-1)
Supervised individual research. May be repeated for credit as topic varies. Can only be substituted for metallurgy electives or technical electives. Prerequisites: Senior standing, a 3.0 grade point average, and permission of the faculty member who is to supervise the research.

4181 Co-op Work Experiences (0-0-1)
4182 Co-op Work Experiences (0-0-1)

4183 Co-op Work Experiences (0-0-1)
Work experience in business, industrial, governmental, professional, service, or other organizations to provide on-the-job training and professional preparation in the student's area of interest. A report covering the work experience must be submitted by the student to the departmental Co-op coordinator or department chair at the end of each work period. Upon completion of his or her third work period and submission of a report summarizing the total work experience, a student can use three hours of Co-op Work Experience in his or her degree plan in place of a technical elective or elective in the major. Prerequisite: Selection by the Co-op Coordinator, department chairperson, and employer.

4195 Senior Professional Orientation (1-0)
Introduction to the engineering profession with emphasis on job placement, professional ethics, and an engineering field examination. Required of all students prior to graduation.

4275 Undergraduate Research in Metallurgy (0-0-2)
Supervised individual research. May be repeated for credit as topic varies. Can only be substituted for metallurgy electives or technical electives. Prerequisites: Senior standing, a 3.0 grade point average, and permission of the faculty member who is to supervise the research.

4303 Metals Processing (3-0)
Analysis of the unit operations involved in metal and mineral production using the principles of material and energy balance, fluid flow, heat transfer, reaction kinetics, and thermodynamics. Survey of processing operations for specific metals such as copper, iron, aluminum, magnesium, titanium, and uranium. Prerequisites: MME 3305, MME 3306, and MME 3308, each with grade of "C" or better.

4309 Corrosion (3-0)
Application of electrochemistry and engineering principles to the corrosion, passivity, and protection of metals and alloys. Prerequisite: MME 2303 or instructor approval.

4310 Polymer Engineering (3-0)
The course provides a basic introduction to the field of polymer science. Basic concepts of organic chemistry address typical polymerization and copolymerization reactions. The characterization of polymer molecules include discussions of thermodynamic solutions, solubility parameters, colligative properties, and scanning electron microscopy. Concepts on the structure and properties of bulk polymers emphasize the relationship to molecular characteristics and manufacturing processes. Prerequisite: MME 3407 with a grade of "C" or better.

4316 Failure Analysis (3-0)
The mechanisms of materials failure, failure analysis techniques, and non-destructive testing methods are discussed with emphasis on analysis and interpretation of case studies. Prerequisites: MME 2303 and CE 2334 2334 , each with a grade of "C" or better.

4320 High Temperature Materials Science (3-0)
The fundamentals of thermodynamics and kinetics of high temperature materials are discussed with emphasis placed on the subjects of diffusion in inorganic compounds, phase relations of multicomponent systems, single/multilayered growth rates, and interfacial reactions of fluid/solid and solid/solid phases. Prerequisites: MME 3306 and MME 3308, each with a grade of "C" or better.

4375 Undergraduate Research in Metallurgy (0-0-3)
Supervised individual research. May be repeated for credit as topic varies. Can only be substituted for metallurgy electives or technical electives. Prerequisites: Senior standing, a 3.0 grade point average, and permission of the faculty member who is to supervise the research.

4404 Materials Processing (3-3)
Analysis of the unit processes involved in ceramic production and specialized processes such as zone refining, chemical vapor deposition, plasma spraying, and surface modification using the principles of material and energy balance, fluid flow, heat transfer, reaction kinetics and the thermodynamics. Survey of specific processing techniques for materials such as silicon, glass, ceramic magnets, silicon carbide, silicon nitride, and ceramic superconductors. Prerequisite: MME 4303 with a grade of "C" or better. Laboratory fee required.

4405 Materials Fabrication (3-3)
Fundamentals of metalworking, forging, rolling, extrusion, and drawing; sheet metal forming, welding, joining, and casting. Prerequisites: MME 2303 with a grade of "C" or better and upper division standing. Laboratory Fee required.

4413 Structural Characterization (3-3)
The application of modern instrumentation and techniques to structural characterization problems. Both theory and operation will be stressed. X-Ray analysis, electron microscopy (TEM-SEM), and electron probe analysis will be included. Prerequisite: MME 3407 with a grade of "C" or better or instructor approval. Laboratory Fee required.

4419 Metallurgical and Materials Engineering Design (3-3)
Introduction to creative industrial problem-solving and the design process in materials engineering. Topics include material and process selection, project planning and resource management, economic decision making in terms of cost evaluation and profitability, and optimization methods. Weekly discussions explore issues of professionalism including engineering ethics, public safety and environmental concerns in design, codes, and standards, etc. Student design teams define and investigate problems in metallurgical processing, materials selection and evaluation, quality control, etc. Design project teams make written and oral progress reports, as well as a final written report and presentation. Laboratory time is devoted to design projects. Prerequisites: MME 3407 with a grade of "C" or better; MME 4303 and IE 3326.

See the Graduate Studies Catalog for graduate programs and courses.

COLLEGE OF LIBERAL ARTS

Departments :

Select a Department go

Dr. Howard C. Daudistel, Dean
Dr. Mimi R. Gladstein, Associate Dean for Humanities
Dr. Harmon M. Hosch, Associate Dean for Social and Behavioral Sciences
Mr. Myron H. Nadel, Assistant to the Dean for Fine and Performing Arts

Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: libarts@utep.edu

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Introduction

The College of Liberal Arts, the largest of the six undergraduate colleges, traces its origins to the earliest days of the State School of Mines. Courses in such areas as history, English, Spanish, and art were offered almost from the beginning of the school's history. In July 1931, the institution (then known as The Texas College of Mines and Metallurgy) was authorized to offer the Bachelor of Arts degree; by 1940-41, students taking courses in the arts and sciences far outnumbered those in engineering. The change of name in 1949 to Texas Western College served as recognition of the institution's development as primarily a college of arts and sciences. In 1967, when the School of Arts and Sciences was divided into four Schools--Liberal Arts, Business Administration, Education, and Science--Liberal Arts became a separate academic unit. The name "School" was changed to "College" in 1974.

The College of Liberal Arts offers a wide range of programs and courses in the humanities, fine arts, and social sciences. These programs include major fields of specialized study and minor fields in both specific academic areas and interdisciplinary study. Elective courses taught within the College provide students with further opportunities for intellectual and aesthetic growth.

The College faculty, through teaching, research, and performance on a variety of levels, exemplify their commitment to the values of liberal arts education: a focus on what is fundamental and enduring in human civilization; a respect for and fostering of intellectual diversity; and the development of skills in communication, analysis, and evaluation. Students who receive a liberal arts education are exposed to certain values which offer them an opportunity for success in a wide variety of fields, a foundation for later professional study, and the crucial ability to adapt to change. The College seeks to prepare students for their professional careers and for a lifetime of learning, intellectual growth, and personal enrichment.

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Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: libarts@utep.edu

Degrees and Majors

Bachelor of Arts
The BA degree is offered in the following major fields: Anthropology, Art, Chicano Studies, Communication, Criminal Justice, English, French, German, History, Latin American Studies, Linguistics, Music, Philosophy, Political Science, Psychology, Sociology, Spanish, and Theatre Arts; also Biology, Chemistry, Economics, Geological Sciences, Mathematics, and Physics.

Requirements for the Bachelor of Arts degree are designed to provide an essential unity in the programs of all Liberal Arts students and at the same time offer each student substantial latitude in course selection. The degree consists of a minimum of 128 semester hours, including at least 45 at the advanced (3000-4000) level. Twenty-four of the last 30 hours must be taken in residence. With exceptions noted in departmental program descriptions, a course taken to satisfy one degree area requirement (University Core Curriculum, Liberal Arts General Education Requirements, major, or minor) may be used once, and only once, to satisfy one other degree area requirement; however, a course may not be used to satisfy a requirement in both the major and the minor.

University Core Curriculum (42 hours -- see the University Core Curriculum section of this Catalog for a complete description)

Liberal Arts General Education Requirements (27-32 hours)

0-3	Communication Skills: ESOL 2303 (for those whose post-primary education has been in a language other than English).
6-8	One Modern or Classical Language: Complete 2301 and 2302 in French, German, Latin, Portuguese, Russian, Spanish (prerequisites: completion of 1401 and 1402 in the language, or placement by examination); or SPAN 2303 and 2304 (prerequisite: placement by examination); or LING 2403 and 2404.
9	Western Cultural Heritage: HUMN 3301, 3302, 3303.
3	Social/Behavioral Science: Select one three-hour course from GEOG 1310, GEOG 3312, LING 2320, 3357, or any Psychology, Sociology, or Anthropology, in addition to the course used to fulfill the University Core Requirement in Social/Behavioral Science.
3	Fine Arts: Select one three-hour course from Art, Music, or Theatre Arts; must be in a discipline other than the one used to fulfill the University Core Curriculum requirement in Fine Arts.
3	Literature: To be selected from literature courses offered by the Department of English or the Department of Languages and Linguistics (a list of courses that meet this requirement is available from the Office of the Dean of Liberal Arts). If a literature course is selected to fulfill the University Core requirement in Humanities, this requirement will also be fulfilled.
3	Philosophy: Select any junior-level (3000-level) three-hour course taught by the Department of Philosophy.

Major Field (27-36 hours)
Complete a major prescribed by an academic department in the College of Liberal Arts (or Science or Business Administration [for the Economics major]) of at least 27 hours, 18 of which must be advanced (3000-4000 level). See individual departmental listings in this Catalog for specific major field requirements.

Nine of the advanced hours in the major must be completed in residence within three years prior to the date of graduation. No course taken on a Pass/Fail basis may be counted for the major, even though the student changes majors after having taken the course. A completed degree plan must include a minimum grade point average (GPA) of "C" (2.0) in the major. Credit for courses taken to fulfill the major field requirements may not also be counted to satisfy minor field requirements.

A student who fulfills requirements for two majors prescribed by academic departments in the College of Liberal Arts (or Science or Business Administration [for the Economics major]) may earn a degree with a double major, provided that the two majors are from different fields. The second major fulfills the requirement for a minor field. There must be a minimum GPA of "C" (2.0) in both majors.

Credit for courses taken to fulfill the major field requirements in one major may not also be counted to satisfy requirements in the other major field.

Minor Field (18 hours)
Complete a minor of at least 18 hours, nine of which must be advanced (3000-4000 level). The minor field must be selected from a discipline different from that of the major field. Credit for courses taken to fulfill the minor field requirements may not also be counted to satisfy major field requirements. No course taken on a Pass/Fail basis may be counted for the minor, even though the student changes minors after having taken the course. A completed degree plan must include a minimum GPA of "C" (2.0) in the minor. See individual departmental listings in this Catalog for specific minor requirements.

Liberal Arts minor fields are available in Anthropology, Art, Art History, Communication, Creative Writing, Criminal Justice, English and American Literature, Film Studies, French, German, History, Linguistics, Music, Philosophy, Political Science, Professional Writing and Rhetoric, Psychology, Sociology, Spanish, and Theatre Arts. See departmental listings for requirements.

Interdisciplinary minors are also available. However, no more than six hours from a student's major field may be counted toward such a minor, and courses so counting may not help satisfy the major requirement. In addition, no more than nine hours from any one discipline will be counted as part of such a minor. Students electing an interdisciplinary major may not elect an interdisciplinary minor. The following are approved interdisciplinary minors: African American Studies, Asian and African Studies, Border Studies, Chicano Studies, Latin American Studies, Military Studies, Religious Studies, Russian and Post-Communist Studies, Translation (Spanish/English), Urban Studies, and Women's Studies. (See section on Interdisciplinary Minors)

Minors may also be selected from the following approved disciplines in other colleges:
Accounting Minor -- ACCT 2301 and ACCT 2302, CIS 2300, and 9 hours from ACCT 3321, ACCT 3322, ACCT 3323, ACCT 3327, ACCT 4301, ACCT 4305, or ACCT 4328.

Computer Information Systems Minor -- ACCT 2301 and CIS 2300, CIS 2335, CIS 3385, CIS 3350, and CIS 3355.

Economics Minor -- ECON 2303, ECON 2304, and either ECON 3302 or ECON 3303, plus 9 hours from ECON 3300 or ECON 4300 level courses.

General Business Minor -- CIS 2300 and 15 hours from BLAW 3301, ACCT 3309 or ACCT 2301, MKT 3300, MGMT 3303 or MGMT 3304, FIN 3310, ECON 3320, or CIS 3345.

Management Minor -- CIS 2300, ACCT 2301, and 12 hours from BLAW 3301, MGMT 3303, MGMT 3311, MGMT 3320, POM 3321, or MGMT 4325.

Marketing Minor -- QMB 2301, ACCT 2301, MKT 3300, MKT 3302; plus 6 hours from MKT 3305, MKT 3320, MKT 4390, MKT 4391, and MKT 4392.

Speech-Language Pathology Minor for Bachelor of Arts (Liberal Arts) Students -- SPLP 1110, SPLP 1310, SPLP 2310, SPLP 3315, and SPLP 4309 (13 hours), and two courses selected from SPLP 3312, SPLP 3313, SPLP 3314, or SPLP 3317 (6 hours).

Science Minors are available in Biology, Chemistry, Geology, Mathematics, and Physics. See College of Science departmental listings for details.

Electives
Complete electives as needed to bring the total semester hours of credit to at least 128. Elective credit cannot also be used in meeting any other degree requirement. Electives of advanced (3000-4000) level may, however, be applied toward satisfaction of the requirement of 45 advanced hours.

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Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: libarts@utep.edu

Degrees and Majors

Interdisciplinary Minors

The College offers several interdisciplinary programs of study that can be pursued in conjunction with any major (except an interdisciplinary major). These minors require the completion of a minimum of 18 semester hours:

African American Studies
The African American Studies Program offers students an interdisciplinary opportunity to examine the African American experience in detail. Specific requirements are listed under African American Studies.

Asian and African Studies The Asian and African Studies minor is a broad, interdisciplinary course of study for students interested in Asian and African cultures or in careers in international business, government service, international health, or in teaching overseas. The core courses are designed to encompass a study of both Asia and Africa (except for the specific area-oriented historical surveys).

Students must take nine hours of courses from the following list that constitutes the core. At least three disciplines must be represented by the core courses. The remaining nine hours may be taken from the core courses not taken to satisfy the core requirement or from the list of optional courses. No more than nine hours may be taken from any one discipline. No more than six hours may be taken from a student's major area.

Core Courses: ENGL 2315, ENGL 2316; HIST 3330, HIST 3336, HIST 3337, HIST 3340; PHIL 3340; POLS 3336

Optional Courses: MICR 2330; ZOOL 3464; ECON 3367; HIST 3324, HIST 3331, HIST 3339; MGMT 4325; POLS 4355

Chicano Studies
The Chicano Studies minor offers students the choice of three options: Social Science, Humanities, and Interdisciplinary. Specific requirements may be found under Chicano Studies.

Humanities
The minor in Humanities is offered through the Western Cultural Heritage Program. Specific requirements are listed under the Western Cultural Heritage section of this catalog.

Latin American and Border Studies
Minors are available in both Latin American Studies and in Border Studies; they provide a student with any other major the opportunity to take advantage of the University's rich resources in these areas. Specific requirements are listed in the Latin American Studies section.

Military Studies
The Military Studies minor is intended for students with an interest in the military as a social institution and in its policies and problems, not solely as reflected in formal military, air, or naval science instruction but, particularly, as illuminated by the social sciences and humanities.

Students are required to complete a core course and to elect fifteen hours from among the optional courses. Not more than twelve hours of the optional courses may be selected from a single department; nor may a student elect courses from both Military Science and Aerospace Studies.

Core Course: HIST 3313

Optional Courses (15 hours): AS 3301, AS 3302, AS 4301, AS 4302; HIST 3305, HIST 3307, HIST 3308, HIST 3311, HIST 3312, HIST 3321, HIST 3324, HIST 3369, HIST 3374; MS 3301, MS 3302, MS 4301, MS 4302; POLS 3330, POLS 3332, POLS 3335, POLS 4330, POLS 4331; SOCI 3381; no more than

one course from CS 1310, CS 1401, CS 1420; CIS 2315, CIS 2335, CIS 3345, or HSCI 3302.

Religious Studies
The Religious Studies minor is designed to provide an interdisciplinary framework within which students can take courses that explore the nature of religion and its impact on human culture, past and present. Courses are academic and non-sectarian in nature. Specific course listings and requirements may be found under Religious Studies.

Russian and Post-Communist Studies
The Russian and Post-Communist Studies minor is a broad, interdisciplinary plan designed to help acquaint students from any major with the Post-Soviet and East European world. It is especially recommended for students who plan advanced study in Russian and Post-Communist fields at the graduate level or who plan careers in business, education, or government agencies dealing with Russia and Post-Communist countries.

Core Courses: HIST 3332 or HIST 3333; POLS 4332 or POLS 4331; and one course chosen from RUSS 3301, RUSS 3350; ENGL 3381, ENGL 3382.

Optional Courses: HIST 2302, HIST 3369, or HIST 3374; POLS 4341; RUSS 3320; SOCI 3341; GEOG 1310.

Translation and Interpretation (Spanish/English)
The Translation and Interpretation Program is designed to provide qualified students with the opportunity to acquire skills in these fields. Translation Certificates in either Spanish or English or both will be awarded to those who pass professional level competency examinations. Consultation with the Program Coordinator is necessary for students to be admitted into the Program. Details of the Program are listed in the Languages and Linguistics section of this catalog.

Urban Studies
The Urban Studies minor is intended for students with an interest in urbanism as an institutional phenomenon and a social process. It is an appropriate supporting study for all humanities as well as social and behavioral science majors, and is particularly appropriate for students who are pursuing professions or vocations which are functionally dependent on urbanism.

Students are required to complete all three of the core courses and to elect nine hours from among the optional courses. Including both core and optional courses, no more than six hours may be taken from any one discipline.

Core Courses: ANTH 3315, POLS 3311, and SOCI 3303.

Optional Courses: POLS 3352; SOWK 3360; SOCI 3327; and, with the approval of the Urban Studies advisor, all special topics courses when the topic is related to urbanism.

Women's Studies
The Women's Studies Program provides a broad, interdisciplinary minor in which students can take course work to specialize in issues of gender and/or women. Specific requirements are listed under the Women's Studies section of this catalog.

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E-mail: liberts@utep.edu

Degrees and Majors

Special Programs

Honors
The University Honors Program, now a campus-wide endeavor involving students from all the colleges, began as a Liberal Arts Honors Program. Even today it remains most closely allied with the humanities disciplines, fostering academic excellence as well as intellectual curiosity and debate, establishing meaningful faculty-student dialogue, and building a sense of scholarly community. Honors courses, taught by outstanding faculty and limited in size, have been offered by the departments of Communication, Criminal Justice, English, History, Languages and Linguistics, Music, Philosophy, Political Science, Psychology, Sociology/Anthropology, and Theatre Arts. Moreover, History, Political Science, and Psychology offer departmental honors upon completion of an Honors thesis. Besides enrolling in courses restricted to program participants, Honors students may avail themselves of options for independent study or Honors contracts, in which special projects are carried out under faculty supervision. Through its close alliance with the University Honors Program, the College of Liberal Arts strengthens its commitment toward providing students with the satisfaction of having exercised their intellectual capabilities to the fullest.

Western Cultural Heritage
The College of Liberal Arts offers a special sequence of interdisciplinary courses required to fulfill the Western Cultural Heritage area of the General Education Core. Details on these courses, the creation of which was facilitated by grants from the National Endowment for the Humanities, can be found under the Western Cultural Heritage section of this catalog.

Pre-Law
UTEP is an excellent place to prepare for law school. Law schools seek well-trained graduates from all disciplines, including sciences, math, languages, social sciences, health sciences, business, education, and liberal arts. In selecting students, law schools are less interested in a student's major than in evidence that the student has well-developed analytical skills, writing skills, and skills in critical reading. Any course or major that helps students acquire these skills is appropriate for pre-law students. For more information, students should contact a pre-law advisor.

Certificate in Legal Reasoning: This certificate program is designed to allow students, regardless of major, to become familiar with the types of reasoning, writing, and analysis that are used in the legal world. The program is valuable both for students interested in the study of legal issues and for students intending to apply to law school. The certificate program is open to and will benefit students from any college or major at UTEP. For students in the College of Liberal Arts, the program fulfills the requirement of a minor. While completion of the program is not necessary to gain entry to law school, it is designed to help students gain admittance into law school and to succeed once admitted by developing the skills that are needed for the study of the law.

Students are required to complete twelve hours of core courses and six hours of electives.

Core Courses: POLS 4321 or POLS 3340, POLS 4322 or POLS 3322, ENGL 3358, ENGL 3365 (the English sections must be sections for pre-law students)

Electives: ANTH 3308, BLAW 3301, BLAW 4325, HIST 3310, PSYC 3315, and, with the approval of program advisors, appropriate special topics courses from any department.

Military Science
Military Science courses are designed to afford the student an opportunity to become a commissioned officer in the U.S. Army. These courses provide leadership training and military skills training required of an Army officer. Army ROTC is open to all male and female students in all academic majors leading to

a bachelor's degree. Specific courses and requirements are listed under the departmental section for Military Science.

Aerospace Studies
The Aerospace Studies curriculum includes the Air Force ROTC education program leading to a commission as second lieutenant in the Air Force. The Air Force ROTC Commissioning Program is open to all qualified male and female students in all academic majors leading to a bachelor's degree. Specific courses and requirements are listed under the departmental section for Aerospace Studies.

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Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: libarts@utep.edu

Aerospace Studies

211 Graham Hall
Phone: (915) 747-5232/5493
E-mail: afrotc@utep.edu

CHAIRPERSON AND PROFESSOR: Terry R. Adler
ASSISTANT PROFESSORS: Anderson, Jakcsy
PARTICIPATING FACULTY: McNichols

The college Air Force Reserve Officer Training Corps (AFROTC) curriculum provides preprofessional preparation for future Air Force officers. It is designed to motivate and prepare college men and women for their initial active duty assignments as Air Force commissioned officers. The curriculum is designed to give the student an understanding of the military instrument of national power with emphasis on the United States Air Force and how it fits into American society. Inherent in course content and methodology are opportunities for the student to develop the capacity to think creatively, speak and write effectively, and lead and manage efficiently.

The Air Force ROTC Commissioning Program is open to all qualified male and female students in all academic majors leading to a bachelor's degree. The program is also open to graduate students. The program is divided into the General Military Course (Basic Course) and the Professional Officer Course (Advanced Course).

Scholarships
Four-year Scholarships: Air Force ROTC scholarships are available annually. These scholarships are awarded on a nationally competitive basis to high school graduates. Interested high school seniors should obtain application requests from their counselors and submit the request by December. Application forms are also available at the Aerospace Studies Program.

Two and Three-Year Scholarships: These scholarships are awarded on a nationally competitive basis to college students. Students, including those not enrolled in Aerospace Studies, may apply through the Aerospace Studies Program. Applications may be submitted anytime.

One-year Scholarships: Limited one-year scholarships are available for certain high demand majors. Applications may be submitted anytime.

General Military Course (GMC)
The first two years of Air Force ROTC (AS 1121-1122 and AS 2121-2122) form the basic course known as the GMC. Basic courses are normally taken during the freshman and sophomore years. There is no military obligation associated with basic courses and they count as free elective credit. Scholarships are available for qualified students. All GMC students with Air Force ROTC scholarships must complete one English composition course prior to completion of the first two years of the program.

Professional Officer Course (POC)
The last two years (AS 3301-3302 and 4301-4302) form the advanced course known as the POC. The POC normally requires two academic years to complete. The two academic years can be a combination of junior-senior, senior-graduate or all graduate years. A one-year program may be offered for specific majors (i.e., Nursing). Students must be physically and mentally qualified for POC entry and have a desire to be commissioned in the Air Force. Completion of the GMC is not a prerequisite for the POC. All POC cadets must demonstrate proficiency in math reasoning before completion of the program. This requires the completion of MATH 3011, its equivalent, or a higher level of proficiency if math placement scores dictate enrollment in a higher level math course. Students must attend a four-week or a six-week summer orientation course. Advanced courses may be taken out of sequence, but compressed or dual enrollment is prohibited. POC cadets are paid $150.00 per month for a maximum of 30 months. Cadets also receive payment for the summer orientation course.

Leadership Training
This training is an integral and mandatory portion of the Aerospace Studies curriculum. Within the framework of the cadet corps, it provides a progression of experiences designed to develop each student's leadership potential and serves as an orientation to military life.

Aerospace Studies (AS)

1121 The Air Force Today I (1-0)
A survey course designed to introduce students to the United States Air Force and Air Force Reserve Officer Training Corps. Featured topics

include: mission and organization of the Air Force, officership and professionalism, military customs and courtesies, Air Force officer opportunities, group leadership problems, and an introduction to communication skills. Leadership Laboratory is mandatory for Air Force ROTC cadets, and it complements this course by providing cadets with followership experiences.

1122 The Air Force Today II (1-0)
A survey course designed to introduce students to the United States Air Force and Air Force Reserve Officer Training Corps. Featured topics include: mission and organization of the Air Force, officership and professionalism, military customs and courtesies, Air Force officer opportunities, group leadership problems, and an introduction to communication skills. Leadership Laboratory is mandatory for Air Force ROTC cadets, and it complements this course by providing cadets with followership experiences.

2121 The Air Force Way I (1-0)
A survey course designed to facilitate the transition from Air Force ROTC cadet to Air Force ROTC candidate. Featured topics include: Air Force heritage, Air Force leaders, Quality Air Force, an introduction to ethics and values, introduction to leadership, group leadership problems, and continuing application of communication skills. Leadership Laboratory is mandatory for Air Force ROTC cadets, and it complements this course by providing cadets with their first opportunity for applied leadership experiences discussed in class.

2122 The Air Force Way II (1-0)
A survey course designed to facilitate the transition from Air Force ROTC cadet to Air Force ROTC candidate. Featured topics include: Air Force heritage, Air Force leaders, Quality Air Force, an introduction to ethics and values, introduction to leadership, group leadership problems, and continuing application of communication skills. Leadership Laboratory is mandatory for Air Force ROTC cadets, and it complements this course by providing cadets with their first opportunity for applied leadership experiences discussed in class.

3301 Air Force Management and Leadership I (3-0)
A study of leadership and quality management fundamentals, professional knowledge, Air Force doctrine, leadership ethics, and communication skills required of an Air Force junior officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied. A mandatory Leadership Laboratory complements this course by providing advanced leadership experiences in officer-type activities, giving students the opportunity to apply leadership and management principles of this course.

3302 Air Force Management and Leadership II (3-0)
A study of leadership and quality management fundamentals, professional knowledge, Air Force doctrine, leadership ethics, and communication skills required of an Air Force junior officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied. A mandatory Leadership Laboratory complements this course by providing advanced leadership experiences in officer-type activities, giving students the opportunity to apply leadership and management principles of this course.

4301 Preparation for Active Duty I (3-0)
Examines the national security process, regional studies, advanced leadership ethics, Air Force doctrine. Special topics of interest focus on the military as a profession, officership, military justice, civilian control of the military, preparation for active duty, and current issues affecting military professionalism. Within this structure, continued emphasis is given to refining communication skills. An additional Leadership Laboratory complements this course by providing advanced leadership experiences, giving students the opportunity to apply the leadership and management principles of this course.

4302 Preparation for Active Duty II (3-0)
Examines the national security process, regional studies, advanced leadership ethics, Air Force doctrine. Special topics of interest focus on the military as a profession, officership, military justice, civilian control of the military, preparation for active duty, and current issues affecting military professionalism. Within this structure, continued emphasis is given to refining communication skills. An additional Leadership Laboratory complements this course by providing advanced leadership experiences, giving students the opportunity to apply the leadership and management principles of this course.

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E-mail: libarts@utep.edu

African American Studies

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Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: libarts@utep.edu

Art

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Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: liberts@utep.edu

Chicano Studies

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Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: libarts@utep.edu

Communication

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Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: libarts@utep.edu

Criminal Justice

Criminal Justice Program

101 Jack Vowell Hallz
Phone: (915) 747-7943
E-mail: crimjust@utep.edu

DIRECTOR: Roy S. Malpass
PROFESSOR EMERITUS: Randolph H. Whitworth
PROFESSORS: Daudistel, Graves, Hosch, Malpass
ASSOCIATE PROFESSOR: Rodríguez
ASSISTANT PROFESSORS: Lucas, Smithey
LECTURER: McCleary

The Criminal Justice Program offers an interdisciplinary major leading toward a BA degree designed to provide students with a broad social science background for understanding crime, criminal behavior, and the criminal justice system and to offer the opportunity to prepare for a professional career in criminal justice.

Requirements for the BA Degree in Criminal Justice

1. Complete a minimum of 131 semester hours, including at least 54 hours at the advanced (3000 or 4000) level.
2. Fulfill the general education core requirements for the Bachelor of Arts degree in the College of Liberal Arts
    a. Criminal Justice majors are encouraged to take ENGL 3359 Technical Writing in addition to the Communication Skills sequence.
    b. Criminal Justice majors are encouraged to fulfill the mathematics requirement by taking PSYC 1303, SOCI 2312, or STAT 2380.
    c. Criminal Justice majors are encouraged to take Sociology and Psychology courses to fulfill the social/behavioral science requirements.
3. Complete 33 hours of criminal justice courses including the following required courses: CRIJ 1301, CRIJ 1302, CRIJ 2306, CRIJ 3300, CRIJ 3302, CRIJ 3313, and CRIJ 4390. A minimum of 24 credit hours in the major must be taken at the advanced (3300-4300) level.
4. Complete a minor of at least 18 hours, nine of which must be at the advanced (3000-4000) level. The minor field must be selected from a discipline different from that of the major field. Credit for courses taken to fulfill the minor may not be used to satisfy the major or general education core requirements. See the general BA minor requirements for a list of acceptable minors.
5. Complete electives as needed to bring the total semester hours of credit to 131. Elective credit cannot be used in meeting any other degree requirement. Electives of advanced (3000 or 4000) level may, however, be applied toward satisfaction of the requirement of 54 advanced hours.

Minor in Criminal Justice
Students who wish to minor in Criminal Justice should complete CRIJ 1301, CRIJ 1302, CRIJ 2306, CRIJ 3300, CRIJ 3302, and CRIJ 3313 for a total of 18 semester hours.

Criminal Justice (CRIJ)

General Prerequisite: Junior standing for all 3300 or 4300-level courses.

1301 Introduction to Criminal Justice I (3-0)
(Common Course Number CRIJ 1301)
Development and philosophy of criminal justice in a democratic society; introduction to agencies involved in the administration of criminal justice.

1302 Introduction to Criminal Justice II (3-0)
An introduction to the American legal system with a particular emphasis on situating the criminal justice system in the larger United States legal context. Prerequisite: CRIJ 1301 with a grade of "C" or better.

2300 Criminal Law (3-0)
(Common Course Number CRIJ 1310)
History and philosophy of modern criminal law, including the structure, definition, and application of statute and leading case law; the elements of crimes and penalties.

2306 Introduction to Corrections (3-0)

A tracing of the evolution and the philosophical underpinnings of institutional and community based correctional practices.

3300 Effectiveness Assessment in Criminal Justice (3-0)
An overview of the process of effectiveness assessment in the development, application, and administration of criminal justice policy. Prerequisite: CRIJ 1302 with a grade of "C" or better.

3301 Criminal Investigation (3-0)
Fundamentals of criminal investigation, including theory and history, and collection and preservation of evidence. Prerequisite: CRIJ 3350 or consent of instructor.

3302 Police Systems and Practice (3-0)
An overview of the structures, functions, and operations of law enforcement agencies in the United States, with emphasis on municipal police departments. The course surveys police operations, staff functions, personnel policies, and current innovations utilized in delivering police services. Covers such topics as police discretion, ethics, police-community relations, and the future of policing in American society.

3303 The Private Sector and Criminal Justice (3-0)
The roles of nongovernmental actors in the justice process, with a focus on the legal and sociological implications of their existence in a democratic society. Both volunteer and profit-making agencies will be examined in relation to the traditional criminal justice agencies of police, courts, and corrections. Private security and loss prevention operations will be surveyed along with private adjudicatory systems and correctional programs.

3306 Community Corrections (3-0)
An examination of the role of the community in the reintegration of offenders. Analysis of those correctional programs which are designed to be administered in a community setting, including probation, parole, halfway houses, restitution, and community service.

3308 Juvenile Justice (3-0)
The law of juvenile delinquency and the administration of the juvenile justice system. The historical development of the concept of delinquency, the special status of juveniles before the law, and juvenile justice procedural law will be examined in detail.

3309 Correctional Counseling (3-0)
Methods used by correctional officers in rehabilitating criminal offenders. Prerequisite: 6 hours of Psychology.

3311 Crime Control and Prevention (3-0)
An examination of those activities undertaken by public and private organizations to control and prevent crime. Those programs which have been successful in reducing the amount of crime will be analyzed, as well as attempts which have been made at predicting and deterring criminal behavior.

3312 Psychology and Law (3-0)
A review of the relationship of psychology to the legal system. Topics include theories of crime, identification and evaluation of criminal suspects, rights of victims and rights of the accused, forensic assessment, jury processes and decision making, punishment and sentencing, and psychological assumptions of legal systems and processes.

3313 Criminology (3-0)
This course surveys historical perspectives on crime, contemporary criminological theory, penological theory, current trends in crime, and critical thought on current criminal justice practices and procedures. Particular emphasis is given to the development and application of theory in regard to different types of crimes, "crime waves," and appropriate penal policy. Prerequisite: CRIJ 1302 with a grade of "C" or better.

3321 Family Violence (3-0)
This course surveys definitions, prevalence, and theories of family violence in the United States. Special emphasis is given to 1) the impact of variation in definitions of family violence on scientific research and conclusions; 2) the societal response to family violence; and 3) the effectiveness of policing strategies of domestic violence.

3322 Research Methods in Criminal Justice (3-0)
Assessment of data collection and interpretation strategies in criminal justice research, including hypothesis formation, research design, types of data, and data analysis. Prerequisite: CRIJ 2301 with a grade of "C" or better.

3350 The Courts and Legal Process (3-0)
Focuses on the role of the courts in the administration of criminal justice, with special attention to the legal processing of criminal defendants. Topics include the structure of the American courts, due process, right to counsel, pre-trial release, plea bargaining, trial proceedings, and sentencing.

3351 Criminal Justice on the United States-Mexico Border (3-0)
An examination of the nature and scope of crime on the United States-Mexico border and an evaluation of the strategies and programs employed by both governments to control criminal activity on the border.

3370 Victimless Crime (3-0)
This course examines those crimes commonly called "crimes without victims" or vice crimes," particularly drug use, prostitution, and gambling. The course examines whether these behaviors are victimless and what social costs and benefits may result. In addition, the course examines criminalization and its alternatives.

3389 Criminal Justice Ethics (3-0)
This course identifies and examines the complexity of ethics pertaining to the practice of criminal justice. It focuses on applied ethics and the reasoning process justice practitioners can use to analyze and evaluate ethical dilemmas.

4300 Selected Topics in Criminal Justice (3-0)
Focuses on those selected issues and problems confronting the various components of the criminal justice system. Topics covered may change each semester. May be repeated for credit upon change of topic.

4301 Readings in Criminal Justice (3-0)
This course is designed for the advanced student who is capable of independent study. Existing regulations, both formal and informal, which govern practitioners in the area of criminal justice will be examined. This course may be repeated for credit when the topics vary. Prerequisite: Department approval.

4310 Internship in Criminal Justice (0-0-3)
A program in which the student is assigned two days (or 16-20 hours) each week to a criminal justice agency. A weekly seminar is also required. Designed to provide the student with an opportunity to apply academic training in practical situations. Prerequisite: Consent of the Program Director.

4311 Immigration Law and Administration (3-0)
An examination of federal regulations pertaining to legal and illegal immigration into the United States. Among the topics discussed are legalization, employer sanctions, amnesty, and constitutional rights of aliens.

4320 Criminal Justice Organization and Management (3-0)
The structures, functions, and operations of criminal justice agencies, including the police, the courts, and corrections are analyzed from an organizational and managerial perspective. Particular attention is given to supervision, decision-making, and policy analysis in the administration of justice.

4325 Moot Court (3-0)
Substantive and procedural problems encountered in a criminal court proceeding. Focus will be on the role of the law enforcement and correctional officer in the judicial process. Prerequisite: CRIJ 2300 or department approval.

4390 The Interdisciplinary Nature of Criminal Justice (3-0)
A critical examination of selected problems and issues in the criminal justice system from an interdisciplinary perspective. Emphasis on theory and research, using comparative and integrative approaches, and case studies. Prerequisites: CRIJ 1302 (with a grade of "C" or better); CRIJ 2306; CRIJ 3300 (or concurrent enrollment); CRIJ 3302 (or concurrent enrollment); CRIJ 3313 (or concurrent enrollment); 6 hours of advanced CRIJ courses.

4399 Research Practicum in Criminal Justice (0-0-3)
A course designed to give students supervised experience in conducting social science research on criminal justice problems. May be taken for a maximum of 9 credit hours. Prerequisites: Either (1) CRIJ 3322, (2) PSYC 3201 and PSYC 3101, or (3) SOCI 3311 and instructor approval.

See the Graduate Studies Catalog for graduate courses.

COLLEGE OF LIBERAL ARTS

Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: liberarts@utep.edu

English

COLLEGE OF LIBERAL ARTS

Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: libarts@utep.edu

History

COLLEGE OF LIBERAL ARTS

Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: libarts@utep.edu

Languages and Linguistics

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Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: liberts@utep.edu

Latin American Studies

200 de Wetter Center
Phone: (915) 747-5196
(915) 747-5157
E-mail: cibs@utep.edu

DIRECTOR: Jon Amastae
PROFESSORS EMERITI: C. Richard Bath, James M. Day, Julius Rivera, Ellwyn Stoddard
PROFESSORS: Amastae, Cardon, Elerick, García, Haddox, James, McGee Deutsch, Natalicio, Pérez, R. Schmidt, Teschner, Villarreal
ASSOCIATE PROFESSOR EMERITUS: David B. Eyde
ASSOCIATE PROFESSORS: Armengol, Bagby, Brannon, Brunk, Campbell, Carmichael, Ford, Howard, Ibarreche, López, R. Peterson, Rocha
ASSISTANT PROFESSORS: Coronado, Longoria, Martin, Morales, J. Peterson, Ramos, G. Rodriguez, Romero

The program in Latin American/Border Studies (LABS) is designed to play a critical role in the fulfillment of UTEP's institutional mission, which includes providing students with perspectives based on UTEP's geographic and social setting, thereby contributing to the formation of a broader intellectual and artistic foundation for the 21st Century and to the search for solutions to regional, national, and international problems. UTEP's location in the largest urban center on the U.S.-Mexico border provides a unique opportunity for understanding the modern world through an immediate and concrete experience in the study of Latin America, and for development of a comprehensive view of the Americas and the ways in which different parts of the Americas interact at various points of contact, including the U.S.-Mexico border. The program includes study of Latin America and of the Border as the zone of expanding connections and fusions between North and South America.

BA in Latin American Studies
The Latin American Studies degree is an interdisciplinary major consisting of interrelated fields designed to provide students with the opportunity to prepare themselves for appropriate employment in business, government, or education or for advanced study in a Latin American area at the graduate level. In addition to the regular academic program, lectures, special seminars, and other Latin American resource opportunities are provided. The Director of the Center for Inter-American and Border Studies serves as advisor to Latin American Studies majors.

In addition to fulfilling the general requirements for the Bachelor of Arts degree, the student must complete 30 hours of credit toward the major. In order to provide flexibility and relevance in the program, the student may choose among five concentrations. In fulfilling the concentrations, no single course may be used to satisfy more than one course requirement.

Students may satisfy the language requirement by successfully completing SPAN 2301 and SPAN 2302 (for non-native speakers) or SPAN 2303 and SPAN 2304 (for native speakers). This requirement may be waived upon successful completion of an approved competency examination. If the requirement is waived, students must complete one of the following: SPAN 3320 Hispanic Civilization (recommended for students relatively fluent in the language), SPAN 3355 Advanced Conversation, SPAN 3356 Advanced Conversation for Native Speakers, or SPAN 3357 Advanced Composition (recommended for students needing enhancement of either oral or writing skills).

Behavioral Science Concentration (30 semester hours)
– 6 hours from ECON 3366; GEOG 3312; POLS 4335; or HIST 3346, HIST 3347, or HIST 3350
– 9 hours of 4300-level Political Science courses in Latin American politics or 9 hours of 3300-4300 level Economics courses with Latin American content
– 6 hours CS 1310; SOCI 2312 or SOCI 3311 (SOCI 2312 may not count in the BA Mathematics/Sciences block)
– 9 hours of 4300-level courses with Latin American content, selected from an approved list

Border Studies Concentration (30 semester hours)
– 6 hours from ECON 3366; GEOG 3312; POLS 4335; or HIST 3346, HIST 3347, or HIST 3350
– 6 hours from ECON 4368 or HIST 3349 or POLS 4337
– 3 hours from HIST 3342 or HIST 3343
– 3 hours from ANTH 3361 or SOCI 3361

– 3 hours from ANTH 3310 or HIST 3316 or POLS 4313
– 3 hours from MUSL 3325 or THEA 3335
– 3 hours from ENGL 3371 or SPAN 3325
– 3 hours from an approved list of courses with a border focus

Business-Economics Concentration (30 semester hours)
– 6 hours from GEOG 3312; POLS 4335; HIST 3346, HIST 3347, or HIST 3350
– 6 hours of Accounting
– 9 hours, FIN 3310, MGMT 3303, and MKT 3300
– 9 hours, ECON 3366, ECON 3367, and ECON 4368

Humanities Concentration (30 semester hours)
– 6 hours from ECON 3366; GEOG 3312; POLS 4335; HIST 3346, HIST 3347, or HIST 3350
– 9 hours of 3300-4300 level modern languages or English courses in Latin American literature
– 9 hours of 3300-4300 level history courses with Latin American content
– 6 hours from PHIL 3312, ARTH 3310, or MUSL 3126

Spanish-Linguistics Concentration (30 semester hours)
– 6 hours from ECON 3366; GEOG 3312; POLS 3435; HIST 3346, HIST 3347, or HIST 3350
–15 hours of 3300-4300 level Spanish courses with Latin American content
– 6 hours in the linguistics of Spanish
– 3 hours of 3300-4300 level course work with Latin American content, selected from an approved list

Minor in Latin American/Border Studies
The minor in Latin American/Border Studies is structured to serve as a complement for the widest possible variety of major fields and thus prepare students for careers in business, industry, government, education, public service, research, law, health, as well as the demands of citizenship in a complex, inter-related world. The minor includes courses that are broadly integrating and problem-based as well as courses that are more narrowly focused. It is envisioned as a means for integrating the specialized majors with a cross-disciplinary and international context.

The 18-hour minor in LABS may be combined with any major. It includes the following requirements:

- 3 hours, SPAN 2302, SPAN 2304. This requirement may be waived upon successful completion of an approved competency examination.
- LABS 3300 The Americas
- 12 hours of electives in courses of Latin American or Border content, selected with the approval of the Latin American/Border Studies Advisor. These electives are designed to provide appropriate complements to the student's major, thereby adding the perspectives of disciplinary breadth and a Latin American/Border perspective.

Latin American/Border Studies (LABS)
Courses in Latin American/Border Studies include a wide variety of courses taught in departments. The Latin American/Border Studies Advisor maintains a list of approved courses in other departments. The course schedule each semester identifies the courses for that semester. Special courses in Latin American/Border Studies include the following:

2330 The Border (3-0)
A multidisciplinary exploration of US-Mexico border issues from the varied and sometimes contentious perspectives of participants/observers on both sides. Students will examine local and non-local perceptions to understand the border as fact and metaphor. Emphasis on appreciating the fragile and complex systems of the border: ethnic, social, cultural, historical, economic, linguistic, legal, and others.

3300 The Americas (3-0)
This course treats selected modern themes as manifested in the Americas, including population movements, the arts, economic change, identity, socio-political structures and events, health, the environment, international relations, borders, and technology. Consideration of each theme includes a discussion of its dynamic historical development and a team-taught, interdisciplinary perspective. Prerequisite: Junior standing.

4301 Topics in Latin American/Border Studies (3-0)
Selected topics in Latin American, Inter-American, or Border Studies. May be repeated for credit when topic varies. Prerequisite: Junior standing and department approval.

COLLEGE OF LIBERAL ARTS

Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: liberts@utep.edu

Military Science

107 Military Science Building
Phone: (915) 747-5621
E-mail: milsci@utep.edu

CHAIRPERSON: Lieutenant Colonel Horace Ragler, Jr.

General
Courses offered by this department are designed to offer qualified students an opportunity to become a commissioned Army officer. The curriculum provides opportunities for leadership training and experience that are not duplicated in other college courses. Instruction encourages the development of resource management skills, self-assurance, confidence, personal discipline, executive abilities, personal responsibility, professional ethics, physical stamina, bearing, and other fundamental qualities required of an Army officer. These same qualities will enhance any civilian career.

The first two years (MS I and MS II) comprise the Basic Course which offers an introduction to Military and Confidence Building Skills, First Aid and Survival Skills, Land Navigation, and Leadership Assessment and Managerial Skills. Basic Courses are normally taken during the freshman and sophomore years without any military obligation. The last two years (MS III and MS IV) constitute the Advanced Course and are normally taken during the student's junior and senior years. All MS courses require a non-credit Leadership Lab and a one credit hour military conditioning course (PE 1157). Additionally, Advanced Course students are required to satisfactorily complete selected courses in Written Communication, Human Behavior, Computer Literacy, Math Reasoning, and Military History prior to commissioning.

Eligibility

Basic Course
Enrollment in the Basic Course is open to all students at any academic level. Credit for all or part of the Basic Course may be granted by the Professor of Military Science (PMS) for participation in high school ROTC or for active military service of four or more months. This is done on a case-by-case basis.

Two-Year Program
Students who did not enroll in the Basic Course, or who cannot be given credit for the Basic Course by virtue of active military service or participation in Junior ROTC (high school), may qualify for the Advanced Course by attending a six-week summer training camp (Camp Challenge located at Fort Knox, Kentucky). Applicants for the camp should visit the Department of Military Science no later than 1 March to obtain application forms and schedule a physical examination. You must have a minimum of four semesters remaining prior to completion of a baccalaureate or advanced degree.

Advanced Course
Admission requires approval of the PMS based on medical fitness, an acceptable degree plan, a cumulative GPA of 2.0 or higher, and military qualification under one of the following plans:

1. Prior military service
2. Completion of the Basic Course requiring MS 1101, 1103, 2202, and 2204
3. Completion of Camp Challenge at Fort Knox, Kentucky
4. Junior ROTC-advanced placement (approved on an individual basis by the PMS)

The student is required to sign a contract with the U.S. government to accept a commission in the Army or Army Reserve upon graduation.

Scholarships

Four-Year Scholarships
Army ROTC scholarships are available annually. These scholarships are awarded on a nationally competitive basis to high school graduates interested in nursing. Interested high school seniors should obtain application requests from their counselors and submit the request by November. Application forms are also available at the Military Science Department.

Three-Year Scholarships
These scholarships are awarded by the Professor of Military Science to College Freshmen. Freshmen, including those not enrolled in Military Science, may apply through the Military Science Department. Applications may be submitted

from January until mid-March.

Two-Year Scholarships
These scholarships are awarded to college sophomores by the Professor of Military Science. Sophomores who have not been in ROTC must attend Summer Camp at Fort Knox, Kentucky where they will receive the "hands on" foundation of the basic ROTC course.

Pay and Allowances
All students enrolled in Army ROTC are furnished uniforms, textbooks, and equipment on a loan basis. All advanced course cadets are paid $150 per month for a maximum of twenty months, excluding the six-week Advanced Camp. The U.S. Government pays the tuition, required fees, textbooks, and essential classroom supplies for Army ROTC scholarship students. Additionally, four-year and three-year ROTC scholarship recipients are paid $150 per month during the fall and spring semesters of their freshman and sophomore years.

Additional Programs
Qualified cadets may attend Airborne School, Air Assault School, and ROTC nurse summer training. Additionally, Advanced Course cadets may attend Cadet Troop Leadership Training (CTLT), serving a two- to three-week tour with an active Army unit upon completion of Advanced Camp.

Commissions Offered
Upon successful completion of all Military Science studies and requirements for a baccalaureate degree, a cadet is awarded a commission as a Second Lieutenant in the United States Army or Army Reserve and may be required to serve on active duty not to exceed three years (four years for ROTC scholarship students). Reserve Officers may request that their active duty be for a period of only three months. Since UTEP offers a general Military Science curriculum, a commission in most branches of the Army is possible. Following graduation, newly commissioned officers are sent to an Officer Basic Course (OBC) to qualify for a specific branch, and then complete a tour of active duty through a variety of challenging assignments. Reserve officers return to a local Reserve unit upon completion of OBC. Active duty can be delayed for those students who wish to pursue graduate studies leading to a master's degree, law degree, medical degree, or others.

Military Science (MS)

Basic Course (MS I and II)

1101 Introduction to Basic Military Skills (1-0)
An introduction of basic military skills and professional knowledge subjects essential for the development of the novice military leader. No military obligation.

1103 Introduction to Basic Military Skills (1-1)
An introduction of basic military skills and professional knowledge subjects essential for the development of the novice military leader. No military obligation.

2202 Military Skills (2-2)
A study of various military skills and professional knowledge subjects essential to a military leader. No military obligation. Prerequisite: MS 1101, MS 1103, or instructor approval.

2204 Military Skills (2-1)
A study of various military skills and professional knowledge subjects essential to a military leader. The MS 2204 course concludes with a leadership assessment evaluation which provides a screening technique, involving behavioral simulations, to determine the competency of potential junior officers. No military obligation. Prerequisite: MS 1101, MS 1103, MS 2202, or instructor approval.

Advanced Course (MS III and IV)

3301 Military Science III (3-1)
A comprehensive treatment of those qualities and skills fundamental to the military profession. This course addresses the role of the Army in national affairs as well as from the historic context. Concurrently, it provides instruction in the organizational, planning, and directive processes of control while incorporating those leadership dimensions associated with written and verbal communicative forms, training procedures, counseling techniques, systems and resource management. This body of information is superimposed over a framework involving selected military skills. Prerequisites: Completion/credit for Basic Course and PMS approval.

3302 Military Science III (3-1)
A comprehensive treatment of those qualities and skills fundamental to the military profession. This course addresses the role of the Army in national affairs as well as from the historic context. Concurrently, it provides instruction in the organizational, planning, and directive processes of control while incorporating those leadership dimensions associated with written and verbal communicative forms, training procedures, counseling techniques, systems and resource management. This body of information is superimposed over a framework

involving selected military skills. Prerequisites: Completion/credit for Basic Course and PMS approval.

3401 Summer Field Training (0-0-4)
Intensive field training course stressing practical application of leadership, management, and performance with emphasis on tactical and technical military skills. Prerequisites: MS 3301, 3302, fully enrolled as an Advanced Course Student, and PMS approval.

3402 ROTC Nurse Summer Training Program (0-0-4)
A three week long clinical leadership experience. Open only to nursing students with at least one clinical nursing course and after completion of MS 3401. The student receives pay. Travel, lodging, and most meal costs are defrayed by the U.S. Army. A 120-hour clinical assignment with an Army Nurse Corps Preceptor at an Army hospital in the U.S. or overseas. Designed to improve clinical skills and self-confidence with the nursing and ROTC curriculum. Prerequisites: MS 3401 and department approval.

4301 Military Science IV (3-1)
An in-depth examination of the profession of arms as it relates to military ethics and professionalism and the national security system. Provides the opportunity to develop executive leadership and managerial skills associated with their attendant functions such as planning and analysis; training management; Command and Staff relationships; personnel, fiscal, and logistics management. Concurrently the MS IV student is placed in leadership, managerial, and instructional roles within an Army Command and Staff framework, and is required to exercise those skills in day-to-day operations. Prerequisites: MS 3301, 3302, and PMS approval.

4302 Military Science IV (3-1)
An in-depth examination of the profession of arms as it relates to military ethics and professionalism and the national security system. Provides the opportunity to develop executive leadership and managerial skills associated with their attendant functions such as planning and analysis; training management; Command and Staff relationships; personnel, fiscal, and logistics management. Concurrently the MS IV student is placed in leadership, managerial, and instructional roles within an Army Command and Staff framework, and is required to exercise those skills in day-to-day operations. Prerequisites: MS 3301, 3302, and PMS approval.

Elective Courses

1113 Marksmanship (0-3)
An extensive skill course emphasizing the techniques of marksmanship and the firing of .22 caliber rifles, pistols, and match-grade air rifles. No military obligation. Laboratory fee required.

1116 Marksmanship (Advanced) (0-3)
An intensive, advanced skill course emphasizing the techniques of competitive marksmanship with match-grade .22 caliber rifles. May be repeated for credit. No military obligation. Prerequisite: MS 1113. Laboratory fee required.

1199 Principles of Leadership (1-0)
A study of leadership principles with an emphasis on leadership dynamics, ethics, decision-making skills, and effective methods of communication. Effective management and leadership skills will be studied through the use of historical case study and practical exercises.

COLLEGE OF LIBERAL ARTS

Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: libarts@utep.edu

Music

COLLEGE OF LIBERAL ARTS

Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: liberts@utep.edu

Philosophy

113 Hudspeth Hall
Phone: (915) 747-6617
E-mail: philos@utep.edu

PROGRAM DIRECTOR: William Springer
PROFESSORS: Haddox, Hall
ASSOCIATE PROFESSORS: Best, Robinson, Springer
LECTURER: Simon

BA Degree
The requirements for a Bachelor of Arts in Philosophy are 30 semester hours of philosophy courses, 24 hours of which are advanced (3300-4300). The following courses are required: PHIL 3314, PHIL 3315, PHIL 3317, PHIL 3318, PHIL 3335, PHIL 4351, and PHIL 4352.

The requirements for a minor in Philosophy are 18 semester hours of Philosophy of which 12 are advanced (3300-4300). The following courses are required: PHIL 3314, PHIL 3317, PHIL 3335, and either PHIL 4351 or PHIL 4352.

Philosophy (PHIL)

1301 Introduction to Philosophy (3-0)
(Common Course Number PHIL 1301)
This course introduces students to some of the major issues in philosophy. The ideas, eras, and important philosophers will be examined. The traditional categories of reality, knowledge, values, and meaning will be the focus, though recent and comparative areas may be included. The further development of the student's discriminative thinking will be the major objective of this course.

1304 Logic (3-0)
(Common Course Number PHIL 2303)
A survey of modern logic including traditional logic, fallacies, sentential logic, and predicate logic.

2306 Ethics: Philosophical Perspective on Human Conduct and Values (3-0)
(Common Course Number PHIL 2306)
An introduction to topics and core problems relating to the moral evaluation of human motivation and action. The course examines the positions of classical philosophers such as Aristotle, Hume, Kant, Mill, and Sartre, as well as contemporary moral problems, such as human rights (e.g., euthanasia, capital punishment, abortion, etc.); animal rights (e.g., genetic engineering, cloning); and environmental ethics.

2313 Chicanos and American Thought (3-0)
After an analysis of the intellectual heritage (Pre-Hispanic, Spanish, and Mexican) of the present-day Chicano, contemporary Chicano value orientations are compared and contrasted with such orientations in American society.

General Prerequisite: Junior standing for all 3300 and 4300-level courses.

3302 Reasoning About Ethical Values (3-0)
After a presentation of the principles of semantics and formal logic, and the rules of evidence and inquiry, critical analyses of selected articles on contemporary moral issues will be undertaken. This course is designed to improve a student's ability to think critically about the ethical dimensions of human conduct.

3308 Aesthetics: Philosophy of Art (3-0)
An overview of the principal philosophical theories regarding the nature of art and aesthetic sensibility. Examines attempts to define art, explores the foundational ideas of art criticism, examines art and the aesthetic as autonomous realms of human engagement, and also attempts to relate them to religion, science, ethics, politics, and everyday life.

3311 Philosophy of Science (3-0)
An analysis of the concepts and methods of both the natural and social sciences with consideration of their historical development and philosophical significance.

3312 Latin American Thought (3-0)
After a survey of philosophical developments in Latin America during the colonial period, during the struggles for independence, and in the nineteenth century, the thought of major twentieth century intellectual leaders in Latin America is

examined. These include professional philosophers but also certain literary and political figures who expressed significant and influential philosophical positions.

3313 American Philosophy (3-0)
A consideration of principal figures who have shaped the American philosophical sensibility. Such individuals may include Edwards, Jefferson, Franklin, Emerson, Thoreau, Whitman, Dickinson, Melville, Pierce, James, Dewey, and Rorty.

3314 Ancient Philosophy: The Origins of Western Thought (3-0)
Studies the origin and development of those ideas and problems which have come to characterize the philosophic tradition in the West as reflected in the thought of the Pre-Socratics, Socrates, Plato, Aristotle, and the Stoics.

3315 Medieval Philosophy: The Scholastic Synthesis (3-0)
Studies the philosophies of the medieval Western and Eastern Mediterranean cultures. Philosophers to be examined include Augustine, Boethius, Ibn-Cina, Ibn-Rushd, Ibn-Gabirol, Maimonides, Aquinas, Scotus, Bonaventure, and Occam.

3317 Modern Philosophy (3-0)
This course focuses on the classical philosophical traditions of Rationalism (Descartes, Spinoza, Leibniz), Empiricism (Locke, Berkeley, Hume), and the critical, ethical philosophy of Kant. Other topics could also include examination of the emergence of the scientific method, and Enlightenment figures such as Mendelssohn and Lessing.

3318 Nineteenth Century Philosophy (3-0)
Examines the reaction to Kant's critiques by Positivism (Comte and followers) on the one hand, and Idealism (Fichte, Schelling, Hegel) on the other. Also looks at the assault on Idealism by Kierkegaard and Marx. The course also examines the impact of Darwinism and Nietzsche on philosophy.

3322 Philosophy of Religion (3-0)
This course is not a comparative study of religion, but rather provides an opportunity to examine the phenomena of western and non-western religions philosophically. The content of this course will vary according to the instructor but could examine such issues as belief and knowledge in God, goddess, gods, or goddesses; religious myth, experience and ritual; religious community; and religious ethics.

3325 Social Philosophy (3-0)
This course examines the philosophical and political issues of social existence. It considers topics such as justice, freedom, rights, authority, social contract theory, political legitimacy, civil disobedience, feminism, postmodern theory, environmental theory, distributive justice, as well as various socio-political ideologies such as liberalism, capitalism, socialism, fascism, and anarchism.

3335 Twentieth Century Philosophy (3-0)
This course will consider the principal forms of contemporary philosophy, logical-positivism, linguistic analysis, existentialism, phenomenology, and speculative philosophy. (Any one or several of these traditions will be stressed depending on the instructor. Consult the philosophy bulletin board for current offering.) May be repeated when course content varies.

3340 Asian Philosophies (3-0)
A consideration of classical Asian philosophical texts and traditions. Topics are normally selected from either the Chinese or Indian traditions. A course on classical Chinese philosophy would focus upon the principal texts of Confucianism and Daoism. A focus upon Indian philosophy would lead to a consideration of schools such as Advaita Vedanta, Upanishadic Theism, and Nyaya.

4302 Metaphysics (3-0)
Often called ontology or speculative philosophy, metaphysics studies the attempts to develop coherent sets of principles by which to understand comprehensive notions such as being and change, appearance and reality, God, freedom, mind, and the universe.

4311 Epistemology: Belief, Perception and Truth (3-0)
Analysis of the philosophical problems regarding the sources, criteria, and limits of knowledge.

4351 Great Philosophers (3-0)
The life and work of one or more of the most influential thinkers in world philosophy will be the focus of this course. Such thinkers include Confucius, Plato, Aristotle, Nagarjuna, Avicenna, Dogen, Kant, Hegel, and Dewey. May be repeated when the course content varies.

4352 Problems in Philosophy Seminar (3-0)
A course with issues of current interest to contemporary philosophers. Recent topics have included postmodernism, literature and philosophy, technological society, movies and the making of the American mind, and the emergence of world philosophy.

4353 Independent Study (0-0-3)
Student research under supervision of the staff. Prerequisite: Instructor approval.

See the Graduate Studies Catalog for graduate courses.

COLLEGE OF LIBERAL ARTS

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Fax: (915) 747-5905
E-mail: libarts@utep.edu

Political Science

COLLEGE OF LIBERAL ARTS

Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: liberts@utep.edu

Psychology

112 Psychology Building
Phone: (915) 747-5551
E-mail: psychology@utep.edu

CHAIRPERSON: Judith P. Goggin
PROFESSORS EMERITI: Guido A. Barrientos, Edmund B. Coleman, James V. Devine, Philip Himelstein, Randolph H. Whitworth
PROFESSORS: Goggin, Hosch, Malpass, Moss
ASSOCIATE PROFESSORS: Cohn, Lucker, Wood, Zarate
ASSISTANT PROFESSORS: Coleman, Crites, Francis, Morera, Radhakrishnan, Schneider, Tomaka, Wiebe

The Psychology Department offers two programs leading to the Bachelor's Degree.

BS Degree
The BS degree is recommended for students who intend to pursue graduate work in psychology because the BS requires a more extensive mastery of mathematics and laboratory science than the BA. Training in science and mathematics is advantageous for students who elect to continue in psychology beyond the baccalaureate. Required courses are:

Major- 36 hours (21 advanced) including PSYC 1301, PSYC 1303, PSYC 3201-PSYC 3101, PSYC 3320, PSYC 3330, PSYC 4317, and at least one of the following: PSYC 3348, PSYC 4309, or PSYC 4324.

Minor- 18 hours (6 advanced) selected from Biological Sciences, Chemistry, Mathematics, or Physics.

Foreign language, while not required, is strongly recommended.

For additional requirements, see the Bachelor of Science degree plan in the College of Science section.

BA Degree
Specific requirements are as follows:

Major- 30 hours (15 advanced) including PSYC 1301, PSYC 1303, PSYC 3201-PSYC 3101, and PSYC 3320 or PSYC 3330.

Minor- 18 hours (9 advanced) Minors may be chosen from any of the areas listed under the Bachelor of Arts degree plan.

Minor in Psychology
Specific requirements are as follows:

18 hours (12 advanced) including PSYC 1301, PSYC 1303, PSYC 3201-PSYC 3101, and PSYC 3320 or PSYC 3330.

For additional requirements, see the Bachelor of Arts degree plan.

Departmental Honors in Psychology
A candidate for departmental honors in psychology will have demonstrated ability in psychology, will have maintained a grade point average (GPA) of 3.0 overall and in psychology by the end of the junior year, and will maintain these averages until graduation. The candidate may be enrolled in either the BS or BA degree plan in psychology. The main requirement for Departmental Honors will be the satisfactory completion of the honors thesis that will be judged by the thesis-research director in conjunction with the Honors Committee.

The candidate for departmental honors must request approval of candidacy during the second semester of the junior year. The Department of Psychology reserves the right to accept or not accept a qualified student, taking into consideration the number of applications, the number of available faculty, and the competence of an individual student. The accepted honors candidate will enroll in PSYC 4352 during both semesters of the senior year and will have accumulated a total of 6 hours of PSYC 4352 credit on completion of the honors program. Other regulations, procedures, and dates of use by honors candidates are available from the Chairperson, Department of Psychology.

Teacher Certification
Students seeking secondary certification in Psychology must complete the BA requirements as described above. Courses must include PSYC 2310, PSYC 2312, PSYC 3347, and one of the following: PSYC 2305 or PSYC 2306.

Certification requires 36 semester hours of courses in the major as described in the Liberal Arts section of this Catalog. Students using Psychology as a supporting field for another major will take 12 hours of courses including PSYC 1301, PSYC 1303, PSYC 2310, and one upper-division course. For further information on certification requirements, see the Catalog sections for the College of Liberal Arts and the College of Education.

Psychology (PSYC)

General Prerequisites: PSYC 1301 is prerequisite for all psychology courses, with the exceptions of PSYC 1303 and PSYC 2305. Junior standing for all 3300 and 4300-level courses is recommended.

1301 Introduction to Psychology (3-0)
(Common Course Number PSYC 2301)
A survey of basic principles in general psychology.

1303 Statistical Methods (3-0)
(Common Course Number PSYC 2317)
A study of the basic concepts of descriptive and inferential statistics as applied to research in the behavioral sciences. Topics may include descriptive statistics, experimental design, correlation, analysis of variance, and non-parametric tests. Required of all psychology majors and minors. Prerequisite: MATH 1320 or MATH 1409 or MATH 1508.

2302 Social Psychology (3-0)
(Common Course Number PSYC 2319)
The study of the individual in the social context. Consideration of topics such as social cognition, person perception, nonverbal communication, social influence, attitudes, prosocial behavior, aggression, and applied social psychology. Prerequisite: PSYC 1301.

2305 Psychology of Human Sexuality (3-0)
(Common Course Number PSYC 2306)
A study of human sexuality on a broad range of levels. Topics will include the biological and hormonal factors that affect sexual behavior, developmental aspects, sexual differentiation, various types of sexual behavior, sexual dysfunction, cultural differences, and a comparison of sex-related differences in abilities.

2306 Psychology of Personality (3-0)
(Common Course Number PSYC 2316)
A study of the normal personality. Includes such topics as biological and social determinants of personality; appraisal of personality; and reactions to anxiety, frustration, and conflict. Prerequisite: PSYC 1301.

2310 Life Cycle Development (3-0)
(Common Course Number PSYC 2312)
The study of the psychological development and adjustment of the individual through the life span. Prerequisite: PSYC 1301.

2312 Introduction to Abnormal Psychology (3-0)
A review of historical approaches to the problems of abnormal behavior. Topics will include the dynamics of abnormal behavior, its classification, symptomatology, and treatment. Prerequisite: PSYC 1301.

2320 Industrial Psychology (3-0)
An introduction to the principles, techniques, and theories of psychology applied to the industrial setting. Prerequisite: PSYC 1301.

3101 General Experimental Psychology Laboratory (0-2)
Laboratory experience in experimental psychology. Corequisite: PSYC 3201. Laboratory fee required.

3201 General Experimental Psychology (2-0)
Introduction to the planning and execution of experiments in psychology and to the analysis and interpretation of data. Corequisite: PSYC 3101. Prerequisites: PSYC 1301 and PSYC 1303.

3315 Psychology and the Law (3-0)
A review of the relationship of psychology to the criminal justice system. Topics may include an examination of the premises of criminal responsibility, psychological testimony in court, and psychological evaluation and management of public offenders, including juveniles and prison populations. Prerequisite: PSYC 1301.

3320 Learning and Memory (3-0)
An introduction to the basic concepts of learning and memory, with a review of both human and animal experimentation. Prerequisites: PSYC 3201, PSYC 3101, and PSYC 1303.

3330 Sensation and Perception (3-0)
Study of the major experimental findings and contemporary theory in sensation and perception. Emphasis on audition and vision. Prerequisites: PSYC 3201,

PSYC 3101, and PSYC 1303.

3331 Cross-Cultural Psychology (3-0)
This course focuses on how culture affects the thoughts and behavior of individuals and small groups. Specific issues covered vary but may include defining culture, cross-cultural research methods, and identification of cultural differences and cultural universals. Prerequisites: PSYC 1301 and PSYC 2302.

3347 Behavior Modification (3-0)
A review of the application of experimental principles of learning for behavior change. Topics include: applications of classical, operant, and cognitive learning in clinical, educational, family, and socio-cultural settings. Prerequisite: PSYC 1301.

3348 Psychology of Thinking (3-0)
An analysis of thought that will include principles and research approaches to information processing, concept formation, decision processes (judgment), and creative accomplishment. Prerequisites: PSYC 3201 and PSYC 3101.

3350 Health Psychology (3-0)
Introduces students to the concepts, theory, and research that comprise health psychology. Emphasis is placed on understanding the relations among psychological and behavioral factors, and psychological well-being, wellness, and disease. Prerequisites: PSYC 3201 and PSYC 3101.

General Prerequisite: The following courses require six advanced hours in psychology.

4301 Psychological Testing (3-0)
Introduction to and training in the administration, scoring, and interpretation of psychological tests. Recommended Prerequisites: PSYC 1301 and PSYC 1303; PSYC 4317.

4309 History and Systems of Psychology (3-0)
A review of the main systems and schools of psychology since 1879. The main assumptions of structuralism, functionalism, psychoanalysis, behaviorism, gestalt psychology, physiological psychology, cognitive psychology, information theory, and current trends are comparatively examined. Prerequisite: PSYC 1301.

4311 Advanced Topics in Developmental Psychology (3-0)
This course will provide students with the opportunity to review and discuss current research findings in developmental psychology. Prerequisite: PSYC 2310.

4312 Advanced Abnormal Psychology (3-0)
A study of the psychological factors contributing to pathological behavior. Emphasis will be placed on current research in genetics, biochemistry, and learning theory in the area of schizophrenia and neurotic processes. Prerequisite: PSYC 2312.

4316 Language and Cognition (cross-listed with LING 4316)
An investigation of language as a cognitive capacity. Topics will include perception, processing, acquisition, and mental representation of language. May be taken as LING 4316. Prerequisite: PSYC 1301 or LING 2320.

4317 Advanced Statistics (3-0)
Further study of experimental design, analysis of variance, covariance, correlation, orthogonal polynomials, complex experimental designs, and non-parametric statistics. Prerequisites: PSYC 1303; MATH 1410-MATH 1411 or MATH 1508 and some knowledge of computer software recommended.

4324 Psychobiology (3-0)
A study of the physiological and biochemical basis of psychopathology in humans and models of psychopathology studied in animals. Background in chemistry and physiology recommended. Prerequisites: PSYC 1301 and Senior standing.

4341 Motivation and Emotion (3-0)
Defines motivational states in terms of physiological patterns, brain function, and psychological models from learning and personality theories. Evaluates the usefulness of these states as explanations of human behavior. Prerequisite: PSYC 1301.

4343 Seminar in Meta-Analysis (3-0)
This course will provide students with training in interpreting and conducting quantitative reviews of research findings. Basic meta-analytic techniques will be examined, and students will initiate their own meta-analytic review of a research area. Prerequisites: PSYC 1301, PSYC 1303 with a grade of "B" or better, and PSYC 3201.

4345 Seminar in Psychology (3-0)

Topic to be selected. May be repeated when topic varies. Prerequisite: Instructor approval.

4352 Independent Research (0-0-3)
Independent student library or laboratory research under the supervision of a faculty member. Regular meetings and reports are required. May be repeated once when topics vary. Prerequisite: Permission of instructor of student's choice. Psychology Research Course fee required.

4353 Honors Thesis (0-0-3)
Advanced laboratory research under the supervision of a faculty member. Research work will be directed towards completion of Departmental Honors Thesis. Regular meetings and progress updates are required. Course may be repeated once. Prerequisites: PSYC 1301, PSYC 1303, PSYC 3201, and instructor approval.

See the Graduate Studies Catalog for graduate programs and courses.

COLLEGE OF LIBERAL ARTS

Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: libarts@utep.edu

Religious Studies

COORDINATOR: Bruce Lawson
Phone: (915) 747-7945
E-mail: religion@utep.edu

Minor in Religious Studies
The Religious Studies Program is designed to provide an interdisciplinary framework within which students can take courses to explore the nature of religion and its impact upon human culture, past and present. Courses are academic in nature and non-sectarian.

Students must complete 18 hours of courses approved by the Coordinator of Religious Studies, of which at least 12 must be at the upper-division level. Of the 18 hours, students must take 9 hours of core courses, selecting one course from each of the following categories:

1. Introduction to Religious Studies: RS 1301 Introduction to Religious Studies
2. World Religions: HIST 3331 History of Religion in the East, HIST 3359 History of Religion in the West, RS 3310 Major World Religions
3. Nature of Religious Experience: PHIL 3322 Philosophy of Religion

The remaining 9 hours of courses needed for the concentration may be selected from among core courses not taken to satisfy the core requirement, non-core courses (listed below), or other courses approved by the program's advisor. No more than six hours from a student's Major may be counted toward the Minor, and courses so counting may not be used to satisfy Major requirements.

Non-Core Courses

ARTH 1305 Art History of the Western World I
GREK 1405 Koine Greek
GREK 1406 Koine Greek
HIST 3340 The Middle East and Islam
HIST 3365 The Age of Reformation
PHIL 3315 Medieval Philosophy
PHIL 3340 Oriental Philosophy
RS 3350 Special Topics in Religious Studies

Religious Studies (RS)

1301 Introduction to Religious Studies (3-0)
An introduction to religious concepts, sociology, phenomena, and ideas; survey of world religions; exploration of the relationship between ethics and religion.

3310 Major World Religions (3-0)
Brief examination of the world's major religions, followed by an in-depth study of one religion, such as Buddhism, Christianity, Hinduism, Islam, or Judaism. Course may be repeated for credit when main focus of the course varies.

3350 Special Topics in Religious Studies (3-0)
An advanced course in some aspect of Religious Studies. May be repeated for credit when topic varies.

COLLEGE OF LIBERAL ARTS

Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: liberts@utep.edu

Social Work

116 Liberal Arts
Phone: (915) 747-5095
E-mail: socialwork@utep.edu

PROGRAM DIRECTOR: Fernando Galan
PROFESSOR: Galan
ASSISTANT PROFESSORS: Coggins, Hartman, Martinez, Ryan

Social Work is a challenging and rewarding profession with the primary goal of helping individuals, families, small groups, organizations, and communities develop knowledge, values, and skills to help themselves to a better quality of life. The purpose of the professional social work education is to enable students to integrate the knowledge, values, and skills of the social work profession into competent practice. Fully accredited by the Council on Social Work Education, the Social Work program at UTEP prepares students for beginning professionally supervised practice.

Mission of the Social Work Program at UTEP

The mission of the Social Work Program is derived from UTEP's own statement of purpose, the standards of accreditation of the Council on Social Work Education, and the region served by the University. More specifically, the Social Work Program at UTEP has as its primary mission the training of culturally competent generalist social work practitioners capable of providing an array of social services to the unique bicultural, bi-national populations living within the service areas identified by the University.

More specifically, the program seeks to achieve its mission through the fulfillment of the following goals:

1. The preparation of students for beginning generalist professional social work practice with individuals, families, groups, communities, and organizations from an ethnocultural perspective
2. The preparation of beginning generalist social workers with cultural competence for practice with the bi-national, multi-cultural populations of the El Paso/Juárez border region with particular emphasis on Hispanics, Mexican Americans, and persons of Mexican descent
3. The preparation of students for graduate education in social work
4. The preparation of students/graduates to meet the person power needs of social service agencies in Southwest Texas, El Paso, and Ciudad Juárez, Mexico

Bachelor of Social Work Degree

Professional social work advisement allows for early and periodic evaluation of each student's performance and guides students in selecting areas of course work. Professional academic advising is therefore essential for all students (pre-professional, transfer, and admitted) to ensure that course work complies with the current BSW degree plan. Professional academic advising for social work and pre-social work majors may be done only by UTEP social work faculty.

The BSW degree plan is designed to assure coverage of CSWE accreditation mandated curriculum content. This degree plan is based on the building block analogy of Social Work education. The freshman year is considered the Liberal Arts year. The sophomore year is the pre- professional year. The junior year is the foundation professional year. The senior year is the advanced professional year. Students shall be considered a pre-professional if they have completed at least 30 hours in the Liberal Arts Core Curriculum and have officially declared Social Work as their major

Social Work classes are sequentially offered and include content on values, ethics, diversity, social and economic justice, populations at risk, human behavior and the social environment, social welfare policy and services, social work practice, research, and field practicum.

The Social Work program places a strong value on community involvement and students begin early (SOWK 2310 Introduction to Social Work and Social Welfare) in their course of study to gain practical experience through volunteer hours in approved agencies. In the foundation professional (junior) year, a pre-internship experience of 60 hours is incorporated into SOWK 3355 Practice I.

BSW Admissions Policy

All students who wish to graduate from the BSW Degree Program at UTEP must

apply for a separate admission into the Program and gain either clear or conditional acceptance. This acceptance is granted through the Social Work Program office. Only students who have been admitted into the BSW Degree Program and have completed all degree plan requirements in both the liberal arts core and the social work major will be recommended for graduation with a BSW degree.

All UTEP students who completed course work before the program was accredited in June 1995 and transfer students should review the Policy on Certification of Coursework to ensure that social work courses comply with the requirements of the current BSW degree plan.

Admissions Criteria

1. UTEP Students
    a. Completion of the University Core Curriculum and additional required Liberal Arts pre-professional courses (a total minimum of 61 hours). The following is the list of UTEP courses from which the 61 hours will be counted (a minimum of "C" in University Core requirements, indicated by a +):
    (1) English Composition (6 hours): ENGL 1311+ and ENGL 1312+
    * ENGL 1611 or COMM 1611 may be used to meet this requirement.
    (2) History (6 hours): HIST 1301+ and HIST 1302+
    (3) Political Science (6 hours): POLS 2310+ and POLS 2311+
    (4) Language (6 hours): Spanish recommended (2300 and above) (placement exam)
    (5) Humanities from menu (3 hours): PHIL 1301+ recommended
    (6) Mathematics from menu (3 hours): MATH 1320+ recommended (placement exam)
    (7) Statistics (3 hours): one course from PSYC 1303, SOCI 2312, STAT 1380, or STAT 2380
    (8) Science (6 hours): University Core Natural Science+
    (9) Biology (7 hours): BIOL 1303 and 1304, plus 1103 or 1104; may be used to meet the University Core requirement
    (10) Social/Behavioral Science (3 hours): University Core Social/Behavioral Science+
    (11) PSYC 1301 and SOCI 1301; either course may be used to satisfy the University Core requirement (6 hours)
    (12) Visual/Performing Arts (3 hours): University Core Visual/Performing Arts+
    (13) Communications (3 hours): COMM 1301+ or 1302+; ENGL 1611 or COMM 1611 may be used to meet this requirement.
    (14) Institutionally Designated Option from menu (3 hours)
    b. Completion of social work prerequisite courses (SOWK 2310 and 2370)
    c. An overall GPA of 2.5 at the time of application
    d. Approval of the Admissions Committee
2. Transfer Students
    a. Transfer coursework from community college (2-year program)
    (1) A maximum of 66 semester hours is transferable to a UTEP degree program from a two-year institution.
    (2) Students may satisfy up to 18 semester hours of the 66 semester hours from community college from the following:

        (a) An introduction to social work or human services course (3 hours)
        (b) A computer course (3 hours)
        (c) A course in human behavior in the social environment (3 hours)
        (d) A course in social policy (3 hours)
        (d) Six academic hours in lower-division elective courses in human services (6 hours)

    (3) Students must have a UTEP GPA of 2.5 at the time of application.
    (4) Students must have approval of the Admissions Committee.
    b. Transfer coursework from a four-year university CSWE accredited BSW program:
    (1) Student may transfer up to 30 semester hours from a CSWE accredited BSW degree program from the following:

        (a) An introduction to social work course (three hours)
        (b) Up to six hours of social policy
        (c) Up to six hours of HBSE
        (d) Up to nine hours of practice and/or field courses
        (e) Up to six hours of research courses

    (2) Students must have an overall GPA of 2.5 at the time of application.
    (3) Students must have approval of the Admissions Committee.

Students must complete at least 25% of the semester hours needed for graduation (a minimum of 32 hours) in residence.

Students must complete 24 of the last 30 semester hours needed for graduation hours in residence.

Students must complete 12 advanced hours in their major in residence within 3 years of graduation.

BSW Admissions Application Process

1. Admissions Application: All students who wish to apply for the BSW Degree Program must complete an admissions application available from the Social Work Program office. A completed application includes:
    a. Completed application form
    b. Copy of official transcripts
    c. Two letters of professional reference
    d. Completed Transfer Credit Evaluation form, if applicable
2. Applications Reviews: Application deadlines are December 1st and May 1st of each academic year. Admissions applications are individually reviewed by the BSW Admissions Committee during the months of December and May of each year. Students are notified of faculty decisions by mail.
3. Admissions Decisions: The following decisions are made on admissions application folders by the Admissions Committee:
    a. Clear Admission: Application is accepted with no problems.
    b. Conditional Admission: Application is accepted with a GPA condition. In order to remain in the BSW degree program following conditional admission, students are required to post a 2.5 GPA in coursework the succeeding semester. Students who post less than a 2.5 GPA in the succeeding semester following conditional admission will not be allowed to enroll in social work practice courses.
    c. Pending Status: Application decision is delayed pending the completion of the admissions application.
    d. Denied Admission: Application is not accepted. Students denied admission should see their advisor and may reapply the following admissions cycle.

A designation other than clear admission requires a meeting of the student with the faculty advisor. The purpose of the meeting is to design a plan to address any outstanding concerns in the file.

Professional/Advanced Professional Courses

To complete the requirements for the BSW degree, the student takes the following courses (for admission to and additional requirements for the Field Work sequence, see below).

Professional/Advanced Professional Courses (a total of 66 hours)

Professional Support (6 hours) ENGL 3359 Technical Writing 3 hours open elective

Social Work Core (36 hours) SOWK 2331, 2320, 3341, 3355, 3320, 3330, 3358, 4480, 4281, 4370, 4490, 4282.

Social Work Electives (12 hours) select 12 hours from SOWK 3346, 3336, 3345, 3365, 3366, 3385, 3326, 3370.

Social Work Support Courses (12 hours, approved by Advisor) Subject to approval by the Advisor, courses may be chosen from Psychology, Sociology, Anthropology, Criminal Justice, Political Science, Chicano Studies, African American Studies, Asian and African Studies, Women's Studies, and Health Sciences.

Total hours required for BSW degree: 127

Field Instruction

During their professional (senior) year, students complete their field practicum, working 16 hours per week in an approved social service or health care agency under the supervision of a degreed social worker. Students are required to make formal application for the field practicum by contacting the Coordinator of Field Practicum in the academic semester preceding their placement.

Admission to Field Instruction

All BSW students must complete a supervised field instruction sequence. In order to be considered eligible for field instruction, students must meet the following criteria:

1. Have a 2.0 or better cumulative GPA on a 4.0 scale in the Liberal Arts foundation
2. Have a 2.5 or better cumulative GPA for all courses completed in Social

Work by the end of the second semester of the foundation professional year of study
3. Completed SOWK 2310, SOWK 2331, SOWK 2320, SOWK 2370, SOWK 3320, SOWK 3330, SOWK 3341, and SOWK 3355 with a "C" or better in each of these courses

Upon completion of the program and all requirements for graduation, the student is eligible to test for licensure from the Texas State Board of Social Worker Examiners as a Licensed Social Worker (LSW).

Social Work (SOWK)

2310 Introduction to Social Work and Social Welfare (3-0)
Introduction to the human service delivery system in the United States, with an emphasis on the social work profession: its mission, philosophy, ethics, values, diverse fields, and ethnocultural perspectives. Observations of social service agencies and guest speakers provide a career orientation to the social work profession. Volunteer experience required.

2320 Social Welfare Policy and Services I (3-0)
Examination of the historical evolution of Social Welfare and the social work profession, with focus on the social policies which comprise the foundation of the welfare state in the United States. Present patterns of social welfare services will also be examined. Emphasis is on the historical evolution of contemporary social problems in the El Paso/Juárez, urban/rural border region. Oppression, discrimination, justice/immigration issues and policies, and their impact on diverse populations at risk will be explored. Required for pre-social work majors. Prerequisites: SOWK 2310 and SOWK 2370.

2331 Human Behavior and Social Environment I (3-0)
Designed to introduce beginning social work students to some mainstream theoretical explanations by which to view individuals, groups, and families. Students will be given an opportunity to compare traditional mainstream models with newer alternative paradigms that focus on human growth and development from a strengths perspective. Special emphasis is placed on issues of cultural, racial, ethnic diversity, racism, sexism, ageism, and disabling mental or physical conditions. Prerequisites: SOWK 2310 and SOWK 2370.

2370 Computers and Social Services: Application to Practice and Evaluation (3-0)
Introduction to the application of computers and information systems to social services, social work practice, and evaluation. Provides "hands-on" experience and application of software. Prerequisites: SOWK 2310 and department approval required.

3170 Special Issues in Social Work (1-0)

3270 Special Issues in Social Work (2-0)

3370 Special Issues in Social Work (3-0)
Professional concerns and issues of social work will be selected by the instructor dependent on student needs.

3175 Independent Study (0-0-1)

3275 Independent Study (0-0-2)

3375 Independent Study (0-0-3)
Supervised individual reading and research leading to development of a major paper or report. Prerequisites: 9 hours of advanced course work in Social Work and department approval.

3320 Social Welfare Policy and Services II (3-0)
An analysis of current major issues and problems in the formulation of social welfare policies on the local, state, and federal levels in the U.S. Social Security, health, education, public welfare and income maintenance, immigration, and international agreements will be highlighted. The impact of various policies upon Hispanics and other at risk populations in the El Paso/Juárez, urban/rural border region. Application of strategies of change will be emphasized. Prerequisites: SOWK 2320, POLS 2310, and POLS 2311.

3326 Social Work in Mexican-American Communities (3-0)
Emphasis is placed on special needs of the Spanish-speaking population in the El Paso/Juárez, urban/rural border region. This course will focus on the following areas: language and culture as barriers or facilitators to service delivery; cultural competence needed in the delivery of services; international considerations for service delivery; cultural pluralism considerations for service delivery; community organization with groups in Spanish-speaking communities.

3330 Research Methods in Social Work (3-0)
An understanding and appreciation of a scientific, analytic approach to building knowledge for practice and for evaluating service delivery in all areas of intervention including student's own practice. Ethical standards, critical thinking, and writing skills will be emphasized. Various methods for analyzing, evaluating,

and utilizing research findings will be presented. Theoretical constructs for conducting culturally sensitive, quantitative/ qualitative research in the El Paso/Juárez, urban/rural border region will be examined. For Social Work majors only. Prerequisites: SOWK 2320, SOWK 2331, SOWK 2370, and SOWK 3341.

3336 Child Welfare Practice and Services (3-0)
Overview of practice and policy issues, problems, and opportunities in the provision of child welfare services in the El Paso/Juárez, urban/rural border region. Emphasis will be given to: collaborative international efforts, culturally sensitive intervention approaches, case management, family preservation, and other intervention strategies. Prerequisite: SOWK 2320.

3341 Human Behavior and Social Environment II (3-0)
Designed to introduce beginning social work students to various theoretical models by which to view how groups, communities, and organizations interface and interact with the social environment. Students will also examine various theoretical models of poverty, particularly as these influence social welfare policies and/or affect the delivery of social services to impoverished populations. For Social Work majors only. Prerequisites: SOWK 2310 and SOWK 2370.

3345 Social Work and the Aging: Cross-Cultural Perspective (3-0)
An examination of the needs and concerns of the aging person in our society from a social/cultural/physiological/ emotional perspective and of methods used to address those needs and concerns. Emphasis will be on advocacy, case management, networking, and direct care methods, and their application to Hispanics and other diverse populations in the El Paso/Juárez, urban/rural border region.

3346 The Process of Addiction: A Cross-Cultural Perspective (3-0)
An examination of the cross-cultural implications of the process of addiction in the El Paso/Juárez, urban/rural border region. Focus is on the comparative patterns of addictions by gender, age, family, and ethnocultural culturally competent intervention modalities will be explored.

3350 Diagnostic Systems for Social Workers (3-0)
Survey of selected diagnostic classification systems, including the DSM-IV, curanderismo/folk-healing practices, and alternative schema based on themes of conflict. Assessment and diagnosis of client and community situations, including cultural understandings of mental and emotional disorders.

3355 Generalist Social Work Practice I (3-0)
This is the first of three generalist practice courses designed to provide-entry level theory, knowledge, research, values, and skills for social work practice with individuals. Self-awareness, problem solving, interviewing, professional relationships, intervention planning and skills, and ethics are included. An ethnocultural perspective with particular focus on the El Paso/Juárez, urban/rural border region is emphasized. For Social Work majors only. Volunteer experience required. Prerequisites: SOWK 2331 and SOWK 2370.

3358 Generalist Social Work Practice II (3-0)
This is the second of three generalist practice courses designed to provide entry-level theory, knowledge, research, values, and skills for social work practice with groups and families. This course continues to build on the problem-solving model, intervention methods, and planning introduced in Social Work 3355. An ethnocultural perspective with particular focus on the El Paso/Juárez, urban/rural border region is emphasized. Sixty hours of volunteer service are required. For Social Work majors only. Prerequisites: SOWK 2331, SOWK 3320, SOWK 3330, SOWK 3341, and SOWK 3355.

3360 Community Organization (3-0)
A general survey of the history, current theories and review of methods and techniques used to develop community organizations in relation to the delivery of human services. Emphasis on urban/rural areas.

3365 Social Work with Special Populations (3-0)
Emphasis is placed on theories, concepts, and techniques of social group work in a wide range of social work settings. This course also covers content on the importance of age, gender, ethnicity, socio-economic status, women, sexual orientation, and disabilities in group processes. Prerequisites: Junior standing and department approval.

3366 Comparative Social Policy and Services: U.S./Mexico (3-0)
A critical analysis of social policies and services in the United States and Mexico from a comparative perspective including social security, health, mental health, and child welfare. Emphasis is on the areas of possible collaboration between public agencies in the U.S. and Mexico. Field visits to agencies in Juárez will be made to familiarize students with policies and programs. Prerequisites: Department approval, SOWK 2320, and SOWK 3320.

3385 General Social Work Practice in the Colonias and Rural Areas (3-0)
Policy and practice issues/problems in "Colonias" and rural areas along the border. The border service area will be examined, with an emphasis on social services, health care, education, housing, and environmental needs. Generalist

practice skills and strategies for community development and change in "Colonias" and rural settings will be emphasized. Prerequisite: Department approval.

4281 Introductory Generalist Field Seminar (2-0)
A capstone seminar that enables students to integrate the theory, knowledge, values, skills, ethics, and ethnocultural competence of generalist social work practice. Corequisite: SOWK 4480. Prerequisites: SOWK 2331, SOWK 3320, SOWK 3330, and SOWK 3355.

4282 Advanced Generalist Field Seminar (2-0)
A capstone seminar that enables students to integrate the theory, knowledge, values, skills, ethics, and ethnocultural competence of generalist social work practice. Emphasis will include an evaluation of one's own practice. For Social Work majors only. Corequisite: SOWK 4490. Prerequisites: SOWK 2370, SOWK 4281, and SOWK 4480.

4370 Generalist Social Work Practice III (3-0)
This is the third of three generalist practice courses designed to provide entry-level theory, knowledge, research, values, and skills for social work practice with organizations and communities. This course continues to build on the problem-solving model, intervention methods, and planning introduced in SOWK 3355 and SOWK 3358 with an emphasis on community development skills and strategies of change. An ethnocultural perspective with particular focus on the El Paso/Juárez, urban/rural border region is emphasized. For Social Work majors only. Prerequisites: SOWK 4281 and SOWK 4480.

4480 Field Instruction I (0-0-4)
First of two field courses in a supervised, laboratory learning experience in a selected social welfare agency consisting of 240 hours. A weekly seminar (SOWK 4281) accompanies this course which enables the student to integrate and apply classroom learning (theory and practice) in a field setting. An ethnocultural practice perspective is emphasized. For Social Work majors only. Corequisite: SOWK 4281. Prerequisites: Formal admission to field placement, SOWK 3330, SOWK 3355, and SOWK 3358. Course fee required.

4490 Field Instruction II (0-0-4)
The second course of the field learning experience in a selected social welfare agency requires a minimum of 240 minimum. It is accompanied by a seminar (SOWK 4282) to optimally integrate and apply generalist social work practice. An ethnocultural practice perspective is emphasized. For Social Work majors only. Corequisite: SOWK 4282. Prerequisites: SOWK 3355, SOWK 3358, SOWK 4281, and SOWK 4480.

COLLEGE OF LIBERAL ARTS

Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: libarts@utep.edu

Sociology and Anthropology

109 Old Main
Phone: (915) 747-5740
E-mail: soci@utep.edu

CHAIRPERSON: S. Fernando Rodríguez
PROFESSORS EMERITI: Julius Rivera, Ellwyn Stoddard
PROFESSOR: Daudistel
ASSOCIATE PROFESSORS EMERITI: David Bruener Eyde, Paul Wershub Goodman
ASSOCIATE PROFESSORS: Campbell, Carmichael, Earle, Howard, Rodríguez
ASSISTANT PROFESSORS: Lucas, Morales, Peterson, Romero, Smithey

COLLEGE OF LIBERAL ARTS

Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: liberts@utep.edu

Theater Arts

371 Fox Fine Arts
Phone: (915) 747-5146
Fax: (915) 747-5438
E-mail: theatrearts@utep.edu

CHAIRPERSON: Charles Fensch
PROFESSORS EMERITI: R. Milton Leech, Gifford W. Wingate
PROFESSORS: Fensch, Gladstein
ASSOCIATE PROFESSOR EMERITUS: Charles L. Etheridge
ASSOCIATE PROFESSOR: Eastman
ASSISTANT PROFESSORS: Farah, Murray, Yeatman

The Theatre Arts degree curriculum consists of a core of required courses that provides the student with a broad base of Theatre arts knowledge and skills. Beyond the requirements, students may select elective options of specialized study in acting, directing, playwriting, design, and Theatre history. An extensive co-curricular play production program offers students the opportunity to participate in all aspects of production. On campus, plays are produced in the 435 seat University Playhouse and the flexible Studio Theatre. The production program regularly includes selections from Theatre classics, contemporary plays, children's Theatre, bilingual Theatre, experimental Theatre, and original playscripts. In addition, there are touring Theatre opportunities. All productions showcase student work under faculty guidance and direction.

COLLEGE OF LIBERAL ARTS

Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: libarts@utep.edu

Western Cultural Heritage

233 Liberal Arts Bldg.
Phone: (915) 747-5835
E-mail: wch@utep.edu

DIRECTOR: Ronald Weber
PROFESSORS: Gladstein, Haddox, Hall, Stafford
ASSOCIATE PROFESSORS: Best, Johnson, Jones, Kluck, Louden, Springer, Weber
ASSISTANT PROFESSORS: Ruiter, Weaver
LECTURERS: Harding, Simon, Wren

The Western Cultural Heritage sequence (HUMN 3301, 3302, and 3303) is required of all BA students and is open to students from other colleges as well. The objective of the sequence is to promote the sort of awareness that will situate the student in his or her cultural environment (culture being that complex of aims, ideals, and interests that define and organize human social activity and its productions). An articulate understanding of Western cultural heritage requires examination of the character and interrelations of the cultural interests of the fine arts, history, literature, philosophy, politics, religion, and science. The sequence is designed to foster such an understanding by focusing, in a carefully coordinated three-semester sequence, on selected Western epochs characterized by peculiarly intense activity in the various aspects of culture.

Through a combination of lecture and discussion, the Western Cultural Heritage sequence seeks to ensure that students receive a systematic, broad (but also intense) exposure to the thinkers, ideas, texts, and art works that have been produced by Western civilization. The fundamental emphasis will be on ways of thinking about basic human questions. Such questions concern the nature of the state; the rights and responsibilities of individuals as citizens and members of the community; concepts of human nature; the human species as victim, antagonist, or part of nature; the supernatural; esthetics; technology; and epistemology.

Such questions as these will be explored by raising them in the context of pivotal epochs or focal loci in which interest in them has been demonstrably widespread. Although the sequence is structured chronologically in the broadest sense, attention will focus on selected moments of intense activity, from which vantage-points collateral lines of influence and ramification will be scrutinized.

Minor in Humanities
For Non-Liberal Arts Majors (other than BIS students)

1. Complete the 9-hour Western Cultural Heritage sequence.
2. Complete 9 hours advanced level courses in Art, Communications, History, Languages and Linguistics, Literature, Music, Philosophy, Religious Studies, Theatre Arts, or HUMN 4390. (With the approval of the Director of Western Cultural Heritage, appropriate lower-level courses may be accepted.)
3. Students should design a proposal for a coherent course of studies that includes courses from at least three disciplines in the Humanities. The proposal must be approved by the Director and be on file with the Western Cultural Heritage Office.

For BIS Students

1. Complete the 9-hour Western Cultural Heritage sequence.
2. Complete 9-15 hours advanced level courses in Art, Communication, History, Languages and Linguistics, Literature, Music, Philosophy, Religious Studies, Theatre Arts, or HUMN 4390. (With the approval of the Director of Western Cultural Heritage, appropriate lower-level courses may be acceptable.)
3. Students should design a proposal for a coherent course of studies that includes courses from at least three disciplines in the Humanities. The proposal must be approved by the Director and be on file with the Western Cultural Heritage Office.

For Liberal Arts Majors

1. Complete the 9-hour Western Cultural Heritage sequence.
2. Complete 18 hours advanced level courses in the Humanities beyond the Western Cultural Heritage requirement. This includes courses from Art, Communication, History, Languages and Linguistics, Literature, Music, Philosophy, Religious Studies, Theatre Arts, and HUMN 4390.
3. Students should design a proposal for a coherent course of studies that

includes courses from at least three disciplines in the Humanities. The proposal must be approved by the Director and be on file with the Western Cultural Heritage Office.

Western Cultural Heritage (HUMN)

3301 Ancient Roots of Western Culture (3-0)
This course examines significant cultural developments in Classical Greece and Rome through close study of the literature, history, philosophy, and arts of these civilizations. For comparison, the course also considers the literature/history of Near Eastern cultures, including selections from the Bible. Required of all Liberal Arts majors. Prerequisite: ENGL 1312.

3302 Medieval and Renaissance Culture (3-0)
This course surveys the matrix of concepts that inform the political and religious institutions of Western culture from the 3rd century CE to approximately 1600 CE. The survey examines the arts and philosophies of the era, relating them to political and social-historical contexts. Required of all Liberal Arts majors. Prerequisite: HUMN 3301.

3303 Modern Western Culture (3-0)
The purpose of this course is to foster in students an appreciation of the complexity and diversity of our Western cultural heritage through a survey of four major revolutions that were instrumental in shaping the modern world from 1650 to the present. These include the scientific, the social, the industrial, and the artistic. Through readings of primary sources, excerpts from major works, reproductions of art and musical works, and lectures, students will be stimulated to develop a capacity for critical assessment of many of the ideas and movements that have helped to shape the world they live in. Prerequisite: HUMN 3301 or 3302.

4390 Special Topics in Humanities (3-0)
Intensified study of a special topic such as Postmodern Culture, Western and Non-Western Cultures, the Cultures of the Humanities and the Sciences, and other areas of special interest in the Humanities. Topic varies with professor in charge. May be repeated for credit when the topic varies. Prerequisite: HUMN 3303 or instructor approval.

COLLEGE OF LIBERAL ARTS

Liberal Arts Bldg., Room 343
Phone: (915) 747-5666
Fax: (915) 747-5905
E-mail: liberts@utep.edu

Women's Studies

233 Liberal Arts
Phone: (915) 747-5200
E-mail: womenstudies@utep.edu

DIRECTOR: Shelley S. Armitage
PROFESSORS: Gladstein, McGee Deutsch, Mortimer, Staudt
ASSOCIATE PROFESSORS: Beyer, Byrd, Howard, Marchino
ASSISTANT PROFESSORS: Farah, Ryan, Whitley

Women's Studies involves the interdisciplinary study of women's experiences, emphasizing historical, contemporary, and future issues concerning women and men. Integration of studies of women through the various disciplines, including information and methods, allows for investigation of women's lives and work, including both academic and first-hand research.

Minor in Women's Studies

To complete a Women's Studies minor, students must earn at least 18 hours in courses approved for Women's Studies credit. At least 15 hours must be at the upper-division level, representing more than one discipline. Courses considered part of an interdisciplinary core include WS 2300 Introduction to Women's Studies, ENGL 3360 Women in Literature, HIST 3391 History of Women, POLS 4314 Women, Power, and Politics, and SOCI 3370 Sociology of Sex Roles.

Other courses appropriate for the Women's Studies minor are taught regularly or as special topics in a number of departments. These include, but are not limited to CRIJ 4300 Women and Crime, CHIC 3301 La Chicana, MGMT 4399 Men and Women as Colleagues in Organizations, SOCI 2315 Marriage and Family, and THEA 3356 Women in Drama.

Women's Studies (WS)

2300 Introduction to Women's Studies (3-0)
This course focuses on the experience of women primarily from the perspective of the social sciences and humanities. A cross-cultural and interdisciplinary course, WS 2300 introduces students to historical and contemporary issues and works, encouraging students to relate to these women's experiences and to the issues, feminist theories, and public policies involved.

3390 Special Topics in Women's Studies (3-0)
Examination of currently relevant subjects in women's studies from interdisciplinary or specific perspectives. Topics will vary and may concern themselves with history, theory, methods, criticism, and other areas of importance. May be repeated for credit when topic varies.

4360 Issues in Women's Studies (3-0)
A study of issues concerning women and gender as related to philosophical, critical, historical, psychological, artistic, and other disciplinary and inter-disciplinary research and expression. May be repeated when the course topics vary. Prerequisites: ENGL 1312 and Junior standing.

COLLEGE OF HEALTH SCIENCES

Dr. Patricia Castiglia, Dean
Dr. Gail Ackall, Associate Dean
Connie Gamboa, Assistant Dean

1101 N. Campbell
Phone: (915) 747-7280
Fax: (915) 747-7207
E-mail: chs@utep.edu

COLLEGE OF HEALTH SCIENCES

- Introduction
- Nursing
- Allied Health

Dr. Patricia Castiglia, Dean
Dr. Gail Ackall, Associate Dean
Connie Gamboa, Assistant Dean

1101 N. Campbell
Phone: (915) 747-7280
Fax: (915) 747-7207
E-mail: chs@utep.edu

School of Nursing

COLLEGE OF HEALTH SCIENCES

Dr. Patricia Castiglia, Dean
Dr. Gail Ackall, Associate Dean
Connie Gamboa, Assistant Dean

1101 N. Campbell
Phone: (915) 747-7280
Fax: (915) 747-7207
E-mail: chs@utep.edu

Introduction

A baccalaureate nursing program was established at El Paso in 1970 under the administration of The University of Texas System School of Nursing. In 1976, the School of Nursing became an integral part of The University of Texas at El Paso and was organized as a College of Nursing. The Health Sciences Programs were transferred to the College in 1979, and shortly thereafter, the name was changed to the College of Nursing and Health Sciences. The latest change was in February 1999 with the renaming to the College of Health Sciences. The College offers an undergraduate nursing program leading to the Bachelor of Science in Nursing degree as well as the Master of Science in Nursing program at the graduate level. Health Sciences programs are offered which lead to the Bachelor of Science in Clinical Laboratory Sciences, the Bachelor of Science in Health Sciences, the Bachelor of Science in Kinesiology, the Bachelor of Science in Occupational Therapy, the Master of Science in Health and Physical Education, the Master of Science in Kinesiology, the Master of Science in Speech-Language Pathology, and the Master in Physical Therapy.

The nursing programs are fully accredited and are approved by the Texas State Board of Nurse Examiners. The Bachelor of Science in Clinical Laboratory Science is accredited by the National Accrediting Agency for Clinical Laboratory Sciences. The Occupational Therapy Program is accredited by the Accreditation Council for Occupational Therapy Education. The Physical Therapy Program is accredited by the Commission of Accreditation for Physical Therapy Education. The master's degree in Speech-Language Pathology is accredited by the Council on Academic Accreditation of the American Speech, Language, Hearing Association and is required in order to qualify for national certification by the American Speech, Language, Hearing Association and for Texas license to practice as a speech-language pathologist.

The College is located approximately one mile from the main UTEP campus, at 1101 North Campbell Street, and is housed in a large, modern building which includes classrooms, laboratories, faculty offices, and lounges for both students and faculty. The Independent Learning Center facilitates independent learning by students through the use of audio-visual programs, programmed units, and laboratory computers. Training and support on instructional software development are available to all interested students and faculty. Equipment reservation and checkout are also available to students and faculty from the College of Health Sciences. The Simulation Laboratory provides an opportunity for students to practice skills before direct contact with patients or clients in clinical settings. The speech, hearing, and language clinic provides a community service as well as the first clinical practicum experience for Speech-Language Pathology students. The Occupational Therapy labs provide students with the opportunity to develop skills in therapeutic media, evaluations, and treatment procedures. In addition, the OT Program has an ADL kitchen where students are able to practice adapting cooking and homemaking techniques for persons with a variety of disabilities. Anatomy laboratory space is shared with the Physical Therapy Program.

The El Paso-Ciudad Juárez international border community, with a population of more than one million, provides a wide variety of clinical experiences for both students and faculty of the College. Hospitals and other health care agencies throughout the area are utilized for student and faculty clinical practice. In addition, the El Paso City-County Health Department and a number of voluntary agencies provide patient care opportunities for learning. Agencies such as the Pan American Health Organization, the U.S. Immigration and Naturalization Service, and customs and consular offices on both sides of the border provide the student with unique learning experiences in the control and prevention of disease.

COLLEGE OF HEALTH SCIENCES

- Introduction
- Nursing
- Allied Health

Dr. Patricia Castiglia, Dean
Dr. Gail Ackall, Associate Dean
Connie Gamboa, Assistant Dean

1101 N. Campbell
Phone: (915) 747-7280
Fax: (915) 747-7207
E-mail: soah@utep.edu

School of Allied Health

COLLEGE OF SCIENCE

Dr. Thomas E. Brady, Dean
Dr. Larry P. Jones, Associate Dean
Dr. Pablo Arenaz, Associate Dean for Entering Students
Dr. Jorge A. Lopez, Assistant Dean

Bell Hall, Room 100
Phone: (915) 747-5536
Fax: (915) 747-6807
E-mail: science@utep.edu

COLLEGE OF SCIENCE

- College Information
- Biological Sciences
- Chemistry
- Geological Sciences
- Mathematical Sciences
- Physics

Dr. Thomas E. Brady, Dean
Dr. Larry P. Jones, Associate Dean
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College Information

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Dr. Jorge A. Lopez, Assistant Dean

Bell Hall, Room 100
Phone: (915) 747-5536
Fax: (915) 747-6807
E-mail: science@utep.edu

Biological Sciences

226 Biological Sciences, Engineering/Science Complex
Phone: (915) 747-5844
E-mail: biology@utep.edu

CHAIRPERSON: Eppie D. Rael
PROFESSORS EMERITI: John R. Bristol, Albert George Canaris, Mary Eleanor Duke, Artie Lou Metcalf, Gordon Wesley Robertstad, Robert Gravem Webb
PROFESSORS: Arenaz, Brady, Freeman, Goldstein, Harris, Irwin, Jones, MacKay, Rael
ASSOCIATE PROFESSOR EMERITUS: Peter Stanley Chrapliwy
ASSOCIATE PROFESSORS: Das, Ellzey, Hunter, Lieb, Webb, Worthington
ASSISTANT PROFESSORS: Aley, Cabeza, Perez, Walsh, Washburn
LECTURER: Mayberry

Baccalaureate Degrees

The Department of Biological Sciences offers both a BA degree and a BS degree in Biological Sciences and the BS in Microbiology. The BS in Biological Sciences degree includes the opportunity to obtain a concentration in Secondary Teacher Certification.

BS in Biological Sciences

The requirement to obtain the BS in Biological Sciences consists of the general College of Science requirements plus the following specific requirements:

Major (a minimum of 40 semester hours including 21 semester hours of upper-division course work): BIOL 1305- BIOL 1107, BIOL 1306- BIOL 1108, BIOL 4192; and one of these options:

a) MICR 2440, BIOL 3414, ZOOL 4181, and ZOOL 4380 or BIOL 4388, plus a minimum of 19 semester hours (12 or more upper-division) of elective courses in Biological Sciences. This option is suggested for students following the Biomedical concentration (described below).

b) BIOL 3416, BIOL 3320, BIOL 3321, plus a minimum of 21 semester hours (10 or more upper-division) of elective courses in Biological Sciences. This option is suggested for students seeking a generalized education in biology, and for those following the Ecology and Evolutionary Biology concentration (described below).

Biomedical Concentration – Students preparing for careers in the health sciences, or for postgraduate study in medicine, dentistry, veterinary science, or advanced degrees in cell or molecular biology should select the Biomedical concentration. A minor in chemistry is highly recommended. BIOL 3320 is strongly recommended as one of the upper-division electives for this track.

Ecology/Evolutionary Biology Concentration – Students preparing for careers and/or advanced degrees in such fields as ecology, evolutionary biology, systematics, zoology, plant sciences, bioarcheology, paleontology, or wildlife and fisheries should select the ecology/evolutionary biology concentration. In addition to the required courses listed above for this track, at least two of the following are strongly recommended: BOT 2410, MICR 2440, ZOOL 2406, ZOOL 2466.

Minor: Acceptable minors are anthropology, chemistry, computer science, geological sciences, mathematics, physics, psychology, and secondary education.

Additional Science: CHEM 1305- CHEM 1105, CHEM 1306- CHEM 1106 are required. If chemistry is the minor, the additional science requirement may be met by GEOL 1301- GEOL 1101 (or GEOL 1303), GEOL 1302- GEOL 1102 (or GEOL 1304); or PHYS 1403- PHYS 1404; or PHYS 1120, PHYS 2410, and PHYS 2411.

Secondary Education Concentration –This concentration requires the following:

Major (a minimum of 40 semester hours including 21 semester hours of upper-division course work): The same major as above in either concentration. It is recommended that upper-division courses be selected from BIOL 4225, 3320, 3321, 4370, 3414, 3416, 3427, BOT 3332, BOT 3341, BOT 3437, ZOOL 4476 or ZOOL 4478.

Minor: This concentration requires a minor in secondary education if the Ecology/Evolutionary Biology concentration is selected, and double minor in both Secondary Education and Chemistry if the Biomedical concentration is

selected.

Additional Science: CHEM 1305- CHEM 1105, CHEM 1306- CHEM 1106 are required. Secondary certification requires a minimum of 12 semester hours of a directly supporting field. If chemistry is selected as this field, an additional 4 semester hours of chemistry are required and the College of Science additional science requirement may be fulfilled by GEOL 1301- GEOL 1101 (or GEOL 1303), GEOL 1302- GEOL 1102 (or GEOL 1304); or PHYS 1403- PHYS 1404; or PHYS 1120, PHYS 2410, and PHYS 2411. If chemistry is offered as the additional science, a minimum of 12 semester hours of geology, mathematics, physics, or psychology are required for the directly supporting field.

BS in Microbiology

The requirement to obtain the BS in Microbiology consists of the general College of Science requirements plus the following specific requirements:

Major (a minimum of 42 semester hours including 30 semester hours of upper-division course work): BIOL 1305- BIOL 1107; BIOL 1306- BIOL 1108; BIOL 3414; MICR 2440; MICR 3443; MICR 3445; MICR 3449; MICR 4453; BIOL 4192; at least nine semester hours to be selected from BIOL 3330, BIOL 3318 and BIOL 3119, BIOL 4322, MICR 3328- MICR 3128, MICR 4351 and MICR 4152, MICR 4355, ZOOL 4380- ZOOL 4181, ZOOL 4384, and ZOOL 3464.

Minor (19 semester hours of Chemistry course work including 11 semester hours of upper-division course work): CHEM 1305- CHEM 1105, CHEM 1306- CHEM 1106, CHEM 3324- CHEM 3124, CHEM 3325- CHEM 3125, and CHEM 4330 or CHEM 4332 are required. Under exceptional circumstances, other acceptable minors are (18 semester hours, including at least 6 semester hours of upper-division course work) in Computer Science, Geological Sciences, Mathematics, Physics, and Psychology.

Additional Science: The additional science is restricted to PHYS 1403- PHYS 1404 (or PHYS 1120, PHYS 2410, and PHYS 2411).

Other: BIOL 4390 and BIOL 4398 are highly recommended.

BA in Biological Sciences

See the College of Liberal Arts section of this catalog for the general requirements for the BA degree. The major requirements are the same as for the BS in Biological Science. The minor requirements follow the requirements of the College of Liberal Arts.

Minor in Biology

A minor in biology requires BIOL 1305- BIOL 1107, BIOL 1306- BIOL 1108, and an additional minimum of 10 semester hours, including at least 6 (9 for a BA degree) upper-division hours of organized courses in the Department of Biological Sciences.

Advising/Placement

Biological Sciences and Microbiology majors are required to consult with and have their enrollment approved by a departmental advisor.

An entering freshman with at least one year of high school biology may take an advanced placement examination given by the University Counseling Service covering BIOL 1303, BIOL 1305, BIOL 1103, and BIOL 1107. It is recommended that students taking the placement examination have an SAT combined score of at least 1000.

Departmental Honors in Biological Sciences

Any UTEP student having a strong background in Biological Sciences or Microbiology, at least 90 hours of undergraduate credit, and a GPA of at least 3.3 either in Biological Sciences or Microbiology, as well as an overall GPA of at least 3.3, may apply for admission to the program. The Departmental Honors Committee retains the right to accept or not accept a qualified student, taking into consideration the number of applicants, the number of available faculty, and the competence of the individual student. The main requirements for Departmental Honors in Biological Sciences or Microbiology will be the satisfactory completion of an Honors Thesis based upon research in Biological Sciences or Microbiology, maintenance of an overall 3.3 GPA or better until graduation, and the presentation of a seminar on the thesis topic. The student will register for 2 semesters of BIOL 4398, and the research will be carried out under the direction of a member of the faculty in Biological Sciences. The satisfactory completion of the Honors Thesis will be judged by the thesis-research director and the Departmental Honors Committee. Departmental Honors may be awarded with or without other currently awarded honors.

Preprofessional Advice

Information about entrance requirements to professional schools may be obtained from the Preprofessional Advisor in the Office of the Dean of Science.

Students should seek this advice by the time they have completed 60 hours of credit toward a degree. A degree in the Department of Biological Sciences provides excellent preparation for postgraduate study in a number of professions related to biology. While a degree in the Biological Sciences is not required for admission to professional schools and postgraduate programs, the following academic backgrounds are strongly recommended:

1. Medicine, Dentistry, or Veterinary Medicine - A minimum of 1 year of biology, 2 years of chemistry including a year of organic chemistry, 1 year of physics, and a semester of calculus are required for admission to most of these professional schools. A BS in Microbiology or Biological Sciences (Biomedical Track option) provides an excellent overall preparation.
2. Physical Therapy - The Preprofessional curriculum includes a year each of biology, chemistry, physics, and psychology; and a semester each of physiology, statistics, and technical writing. Students are strongly recommended to follow the requirements for a BS in Microbiology or Biological Sciences (Biomedical Track option) until they are admitted to the professional program. Specific requirements for the UTEP physical therapy program may be found in the Graduate Studies Catalog.
3. Fisheries, Wildlife, Forest, and Range Sciences - The BS in Biological Sciences (Ecology/Evolutionary Biology Track option) is strongly recommended as the best preparation for careers in these fields.

Biology (BIOL)

1103 Introductory Biology Methods (0-2)
(Common Course Number BIOL 1108)
Elementary aspects of evolution, physiology, development, genetics, and ecology in plants and animals. Concurrent enrollment with BIOL 1303 recommended. Laboratory fee required.

1104 Human Biology Laboratory (0-2)
Exercises and computer simulations of development, physiology, and heredity in humans. Concurrent enrollment with BIOL 1304 recommended. Laboratory fee required.

1107 Topics in the Study of Life (0-2)
(Common Course Number BIOL 1106)
Elementary aspects of cell structure, function, and genetics. Concurrent enrollment with BIOL 1305 recommended. Laboratory fee required.

1108 Organismal Biology (0-2)
(Common Course Number BIOL 1107)
Laboratory experiments and observation on plants, animals, and fungi. Prerequisite: BIOL 1305- BIOL 1107 and BIOL 1306. BIOL 1306 may be taken concurrently with BIOL 1108.

1110 Field Biology for Teachers (0-0-1)
Field experience in desert biology, addressing vertebrates, invertebrates, plants, and ecology. For pre-service teachers only. Field trips required. Restricted to majors: IDST, GENS, and BIOL. Corequisite: BIOL 1303.

1303 Introductory Biology (3-0)
(Common Course Number BIOL 1308)
Evolution and ecology, biotic diversity, and an introduction to principles of cell biology for BIS students and other non-science majors.

1304 Human Biology (3-0)
Introduction to the physiology, reproduction, development, and heredity of humans. Recommended for students in social work and other non-science majors.

1305 General Biology (3-0)
(Common Course Number BIOL 1306)
A molecular approach to the principles of biology emphasizing cell biology and genetics. Prerequisite to upper level biology courses. Prerequisites: BIOL 1107 and MATH 0311 or an adequate score on a placement examination. BIOL 1107 may be taken concurrently with BIOL 1305.

1306 Organismal Biology (3-0)
(Common Course Number BIOL 1307)
Principles of structure and function at the organismal level; survey of biodiversity in plants, animals, and fungi. Prerequisites: BIOL 1108 and MATH 0311 or an adequate score on a placement examination. BIOL 1108 may be taken concurrently with BIOL 1306.

2111 Human Anatomy/Physiology Lab I (0-2)
(Common Course Number BIOL 2101)
Computer simulations and laboratory exercises in human anatomy and physiology with emphasis on the skeletal, muscular, and nervous systems. Prerequisite: BIOL 2311. BIOL 2311 may be taken concurrently with BIOL 2111. Laboratory fee required.

2113 Human Anatomy/Physiology Lab II (0-2)
(Common Course Number BIOL 2102)
Computer simulations and laboratory exercises in human anatomy and physiology with emphasis on homeostatic systems. Prerequisite: BIOL 2313. BIOL 2313 may be taken concurrently with BIOL 2113. Laboratory fee required.

2117 Methods of Population Biology (0-3)
Demonstrations and application of ecological concepts with emphasis on field work. Prerequisite: BIOL 2316. BIOL 2316 may be taken concurrently with BIOL 2117. Laboratory fee required.

2311 Human Anatomy/Physiology I (3-0)
(Common Course Number BIOL 2301)
Biological molecules, body organization, and correlated structure and function of the human skeletal, integumentary, muscular, and nervous systems. Prerequisites: BIOL 1305- BIOL 1107 or ZOOL 2406 (or equivalent); BIOL 2111. BIOL 2111 may be taken concurrently with BIOL 2311. Normally taught spring semester only.

2313 Human Anatomy/Physiology II (3-0)
(Common Course Number BIOL 2302)
Correlated structure and function of the human cardiovascular, respiratory, digestive, urinary, reproductive, endocrine, and immune systems. Prerequisites: BIOL 1305- BIOL 1107 or ZOOL 2406 (or equivalent); BIOL 2113. BIOL 2113 may be taken concurrently with BIOL 2313. BIOL 2311 recommended. Normally taught fall semester only.

2316 Population Ecology (3-0)
Relations of biota to the physical and biological environment. Prerequisites: BIOL 2117; BIOL 1306- BIOL 1108 or ZOOL 2406 or BOT 2410. BIOL 2117 may be taken concurrently with BIOL 2316.

General Prerequisite: All required lower-division courses in the major should be completed with a "C" or better in order to enroll in upper-division courses in the major. Some upper-division courses may be applied toward graduate degrees; consult the Graduate Studies Catalog for the listing of these courses.

3119 Experimental Embryology (0-3)
Techniques and observations of development in invertebrates and vertebrates, as well as regulatory patterns of plant hormones. Prerequisite: BIOL 3318. BIOL 3318 may be taken concurrently with BIOL 3119. Laboratory fee required.

3120 Virtual Genetics (0-3)
Computerized autotutorial exercises and problem solving based on human genetics and experiments with drosophila. Prerequisite: BIOL 3320. BIOL 3120 may be taken concurrently with BIOL 3320. Laboratory fee required.

3318 Developmental Biology (3-0)
A study of growth, differentiation, and developmental patterns in plants and animals. Prerequisites: BIOL 1305- BIOL 1107; BIOL 3119. BIOL 3119 may be taken concurrently with BIOL 3318.

3320 Genetics (3-0)
The nature and functions of hereditary material with emphasis on the experimental procedures and data that have led to the current concepts in genetics. Prerequisites: BIOL 1305- BIOL 1107 or and BIOL 1306- BIOL 1108.

3321 Evolutionary Theory (3-0)
Development of evolutionary thought, evidences of evolution, and evolutionary processes. Prerequisite: BIOL 3320.

3326 Animal Ecology (3-0)
Animal population dynamics, food habits, and nutritional aspects of ecosystem study. Prerequisite: BIOL 2316. GEOG 1306 recommended.

3330 Histology (2-2)
Survey of tissue structure at the light microscopic level, with emphasis on animal specimens and identification. Not a course in preparative technique. Prerequisite: ZOOL 2406 or BIOL 1306- BIOL 1108 or BIOL 2311 or BIOL 2313. Laboratory fee required.

3341 Plants in Southwest Cultures (3-0)
Study of food, fiber, medicinal and dye plants utilized by Southwest cultures with an emphasis on ethnobotany. Students may be required to take one weekend field trip. Prerequisite: BOT 2410.

3414 Molecular Cell Biology (3-3)
Biochemical and ultrastructural study of cells, including gene regulation, cell signalling, membrane transport, conduction, and contraction. Includes experimental techniques of cell and molecular biology. Prerequisites: BIOL 1305- BIOL 1107; CHEM 1306- BIOL 1408. MICR 2440 strongly recommended. Laboratory fee required.

3416 Ecology (3-3)

Interactions between populations of organisms and their environments at community and ecosystem levels. Prerequisites: BIOL 1306- BIOL 1108 and (1) BOT 2410 or (2) ZOOL 2406 or (3) ZOOL 2466. MATH 1411 recommended. Laboratory fee required.

3427 Desert Ecology (3-3)
Physical and biological characteristics of deserts, including behavioral and physiological adaptations of organisms to physical extremes, with emphasis on Chihuahuan Desert organisms. Field trips and research projects required. Prerequisites: BIOL 2316- BIOL 2117 or instructor approval.

4192 Senior Seminar (1-0)
A capstone review of basic biological principles, evaluation of student success, and preparation for postgraduate study or careers for majors in Biological Sciences and Microbiology. Prerequisite: Senior standing.

4195 Advanced Methods in Biology (0-3)
Advanced investigational techniques in the biological sciences, to accompany selected sections of BIOL 4395. Corequisite: BIOL 4395. Laboratory fee required.

4198 Special Problems (0-0-2)

4298 Special Problems (0-0-4)

4398 Special Problems (0-0-6)
Laboratory research conducted by advanced students. No more than 6 hours of 4198-4398 may be counted toward graduation. Prerequisite: Instructor approval. Laboratory fee required.

4223 Transmission Electron Microscopy (0-4)
Techniques of analyzing cell ultrastructure. Prerequisite: BIOL 4322. BIOL 4322 may be taken concurrently with BIOL 4223. Laboratory fee required.

4225 Field Biology (0-6)

4325 Field Biology (0-9)
Collection and study of organisms under field conditions. Variable credit. No more than six hours of Field Biology may be counted toward degree. Prerequisites: BIOL 2316- BIOL 2117 and instructor approval. ZOOL 2466 recommended. Transportation fee varies according to destination of trip.

4317 Plant Ecology (3-0)
Plant communities and factors that affect their dynamics and stability. Prerequisites: BIOL 2316- BIOL 2117.

4322 Biological Ultrastructure Interpretation (3-0)
Explanation of the techniques of electron microscopy and interpretation of the fine structure and correlated biochemistry of viruses, prokaryotes, and eukaryotes. Prerequisites: BIOL 1305- BIOL 1107 and 12 hours of chemistry or instructor approval.

4324 Animal Behavior (3-0)
Theories and experiments that elucidate the biological basis for the behavior of animals. Prerequisites: ZOOL 2406 or BIOL 1306- BIOL 1108.

4326 Bioarchaeology (2-3)
Recovery, processing, and interpretation of biological material associated with prehistoric and historic humans in the New World. Laboratory fee required.

4370 History and Philosophy of Biology (3-0)
Historical and philosophical dimensions of biology, as illustrated by selected themes such as Darwin and his critics, classical experiments in biology, evolutionary epistemology, and historical controversies in biology. Prerequisites: BIOL 1306- BIOL 1108..

4388 Mammalian Physiology (3-0)
Physiological and homeostatic mechanisms in mammals, with emphasis on cardiovascular, respiratory, renal, digestive, and endocrine systems in mammals. Prerequisites: BIOL 1306- BIOL 1108.. BIOL 3414 and ZOOL 4384 recommended.

4390 Biological Practicum (0-0-6)
Practical on-the-job experience in federal, state, city-county governmental, and/or private agencies or industries. Prerequisites: Senior standing, minimum of 15 advanced hours in designated subject matter areas of biological sciences necessary for job experience and instructor approval. No more than 6 hours of BIOL 4390 and/or BIOL 4198- BIOL 4398 will count toward graduation.

4395 Topics in Biology (3-0)
Advanced study of contemporary research topics in molecular, cellular, organismic, environmental, or evolutionary biology. Topics vary according to instructor. May be repeated once for credit. Prerequisite: Instructor approval.

Botany (BOT)

2410 General Botany (3-3) (Common Course Number BIOL 1411)
A general introduction to the diversity of eukaryotic autotrophs. The structure, growth, physiology, and importance of the flowering plants as the dominant land plants will be emphasized. Prerequisites: BIOL 1305- BIOL 1107.; MATH 1508. MATH 1508 may be taken concurrently with BOT 2410. Laboratory fee required.

General Prerequisite: All required lower-division courses in the major should be completed with a "C" or better in order to enroll in upper-division courses in the major. Some upper-division courses may be applied toward graduate degrees; consult the Graduate Studies Catalog for the listing of these courses.

3330 Comparative Plant Morphology (3-0)
Life histories, phylogenetic relationships of vascular and non-vascular plants. Prerequisite: BIOL 1306/ BIOL 1108.. or BOT 2410.

3332 Economic Botany (3-0)
Origin and utilization of plants important to humans, with emphasis on nutritional aspects. Prerequisite: BOT 2410.

3340 Plant Physiology (3-0)
Plant function at the tissue, cell, and molecular level. Prerequisite: BOT 2410.

3437 Plant Taxonomy (2-4)
Characteristics, classification, and phylogenetic studies of native and ornamental vegetation. Prerequisite: BOT 2410. Laboratory fee required.

Microbiology (MICR)

2330 Microorganisms and Disease (3-0)
A survey of microorganisms important to humans with emphasis on pathogens. Diagnostic procedures for pathogenicity of and immune responses to the more common pathogens. A terminal course not to be used as a prerequisite for any other course. A course for non-majors, including those in the nursing program. Prerequisites: BIOL 1305- BIOL 1107 and 12 hours of chemistry or instructor approval. .

2440 General Microbiology (3-3)
Survey of microorganisms and their characteristics; aspects of biochemical cytology, physiology, and genetics; introduction to applied microbiology. Techniques used in the study of microorganisms. Prerequisites: BIOL 1305- BIOL 1107 and 12 hours of chemistry or instructor approval. ; CHEM 1306- BIOL 1106 and 12 hours of chemistry or instructor approval. ; MATH 1508. CHEM 1306- BIOL 1106 and MATH 1508 may be taken concurrently with MICR 2440. Laboratory fee required.

General Prerequisite: All required lower-division courses in the major should be completed with a "C" or better in order to enroll in upper-division courses in the major. Some upper-division courses may be applied toward graduate degrees; consult the Graduate Studies Catalog for the listing of these courses.

3128 Microbial Ecosystems Techniques (0-3)
Techniques employed in studying microbial ecology and environmental microbiology. Prerequisite: MICR 3328. MICR 3328 may be taken concurrently with MICR 3128. Laboratory fee required.

3328 Microorganisms in Ecosystems (3-0)
The relationship between microorganisms (viruses, bacteria, fungi, algae, and protozoa) and their environment (air, water and soil microbiology decomposition, and pollution). Prerequisites: CHEM 1306- BIOL 1106 and MICR 3128. MICR 3128 may be taken concurrently with MICR 3328. MICR 2440 recommended.

3443 Pathogenic Microbiology (3-3)
Epidemiology, pathogenicity, and host response to disease-producing microorganisms. Diagnostic procedures for isolating and identifying pathogens. Prerequisite: MICR 2440. Laboratory fee required.

3445 Microbial Physiology (3-3)
Biochemical cytology, growth, nutrition, metabolism, and genetics of microorganisms. Techniques for studying physiological activities of microbial cells. Prerequisites: MICR 2440, CHEM 3325, and CHEM 3125. Laboratory fee required.

3449 Prokaryotic Molecular Genetics (3-3)
Molecular biology of prokaryotes. Transfer of genetic information, structure and organization of the prokaryotic genome, regulation of gene expression, and genetic engineering. Prerequisites: BIOL 3320 or MICR 2440. Laboratory fee required.

4152 General Virology Techniques (0-3)
Techniques used to study animal and bacterial viruses. Prerequisite: MICR 4351. MICR 4351 may be taken concurrently with MICR 4152. Laboratory fee required.

4351 General Virology (3-0)

Biochemistry and virus-host interactions of animal, bacterial, insect, and plant viruses. Prerequisites: MICR 2440 or MICR 2340, and BIOL 3320. MICR 3445 also recommended.

4355 Medical Mycology (3-0)
A study of the fungi of medical importance. Prerequisite: MICR 2440.

4453 Immunology (3-3)
Antigens and antibodies, humoral and cellular immunity, transplants, complement, and diseases of the immune system. Prerequisites: MICR 2440, CHEM 3325, and CHEM 3125. Laboratory fee required.

Zoology (ZOOL)

2406 Vertebrate Zoology (3-3)
(Common Course Number BIOL 1413)
A survey of basic classification, functional systems, and biology of vertebrates. Prerequisites: BIOL 1305- BIOL 1107 and 12 hours of chemistry or instructor approval. , BIOL 1306- BIOL 1108.. , and MATH 1508. MATH 1508 may be taken concurrently with ZOOL 2406. Laboratory fee required.

2466 Invertebrate Zoology (3-3)
Survey and laboratory exercises concerning the invertebrates with emphasis on phylogeny. Prerequisites: BIOL 1305- BIOL 1107 and 12 hours of chemistry or instructor approval. and BIOL 1306- BIOL 1108.. . Laboratory fee required. General Prerequisite: All required lower-division courses in the major should be completed with a "C" or better in order to enroll in upper-division courses in the major. Some upper-division courses may be applied toward graduate degrees; consult the Graduate Studies Catalog for the listing of these courses.

3464 Medical Parasitology (3-3)
A survey of medically important parasites. Prerequisite: ZOOL 2406 or BIOL 1306- BIOL 1108.. . Laboratory fee required.

3468 Entomology (3-3)
Evolution, phylogeny, ecology, physiology, morphology, and systematics of insects. Field trips and an insect collection are required. Prerequisites: BIOL 1306- BIOL 1108.. .

4155 Vertebrate Paleontology Techniques (0-3)
Collection, preservation, identification, and curation of vertebrate fossils. This course is identical to GEOL 4155. Prerequisite: ZOOL 4354. ZOOL 4354 may be taken concurrently with ZOOL 4155. Lab fee required.

4157 Advanced Vertebrate Paleontology Techniques (0-3)
Collection, preservation, identification, and curation of vertebrate fossils. This course is identical to GEOL 4157. Prerequisite: ZOOL 4356. ZOOL 4356 may be taken concurrently with ZOOL 4157. Laboratory fee required.

4181 Vertebrate Physiology Methods (0-3)
Techniques and instrumentation used in study of vertebrate function. Prerequisite: ZOOL 4380. ZOOL 4380 may be taken concurrently with ZOOL 4181. Laboratory fee required.

4354 Paleozoic and Mesozoic Vertebrate Paleontology (3-0)
Study of evolution, biologic history, biostratigraphy, and classification of the Paleozoic and Mesozoic vertebrates with emphasis on the lower vertebrates and an introduction to early mammalian development. This course is identical to GEOL 4354. Corequisite: ZOOL 4155. Prerequisites: (1) GEOL 1302- BIOL 1102.. , (2) ZOOL 2406, (3) BIOL 1306- BIOL 1108.. , or (4) instructor approval.

4356 Cenozoic Vertebrate Paleontology (3-0)
Study of the evolution, biologic history, biostratigraphy, and classification of the Cenozoic vertebrates with major emphasis on the mammals. This course is identical to GEOL 4356. Prerequisites: ZOOL 4157 and (1) GEOL 1302- GEOL 1102, (2) ZOOL 2406, (3) BIOL 1306- BIOL 1108.. , or (4) instructor approval. ZOOL 4157 may be taken concurrently with ZOOL 4356.

4380 Vertebrate Physiology (3-0) Vertebrate systemic functions emphasizing nerve action and movement, endocrinology and metabolic controls, osmoregulation, cardio-physiology, and respiration. Prerequisites: CHEM 1306- CHEM 1106- , ZOOL 4181, and (1) BIOL 3414, (2) ZOOL 2406, or (3) BIOL 1306- 1108. ZOOL 4181 may be taken concurrently with ZOOL 4380.

4384 Neurobiology (3-0)
Neural organization in animals. Evolution of nervous systems in different phyla, with emphasis on network and neurochemical mechanisms for information processing. Prerequisite: ZOOL 2406 or ZOOL 4380 or BIOL 1306- BIOL 1108.. .

4476 Fish, Amphibians, and Reptiles (3-3)
Classification and natural history of fish, amphibians, and reptiles. Prerequisite: ZOOL 2406 or BIOL 1306- BIOL 1108.. . Laboratory fee required.

4478 Birds and Mammals (3-3)

History of the study, literature, and biology of birds and mammals. Prerequisite: ZOOL 2406 or BIOL 1306- BIOL 1108.. . Laboratory fee required.

See the Graduate Studies Catalog for graduate programs and courses.

COLLEGE OF SCIENCE

- College Information
- Biological Sciences
- Chemistry
- Geological Sciences
- Mathematical Sciences
- Physics

Dr. Thomas E. Brady, Dean
Dr. Larry P. Jones, Associate Dean
Dr. Pablo Arenaz, Associate Dean for Entering Students
Dr. Jorge A. Lopez, Assistant Dean

Bell Hall, Room 100
Phone: (915) 747-5536
Fax: (915) 747-6807
E-mail: science@utep.edu

Chemistry

201A Physical Science Building
Phone: (915) 747-5701 (915) 747-5720
E-mail: chemistry@utep.edu

CHAIRPERSON: Russell R. Chianelli
PROFESSORS EMERITI: Harold Alexander, William C. Herndon, Winston D. Lloyd, James W. Whalen
PROFESSORS: Chianelli, Davis, Dirk, Ellzey, Pannell
ASSOCIATE PROFESSOR EMERITUS: Joseph Scruggs
ASSOCIATE PROFESSORS: Becvar, Gardea-Torresdey, Salvador, ter Haar
ADJUNCT PROFESSOR: Smith

Baccalaureate Degrees The Department of Chemistry offers both a BA degree and a BS degree in Chemistry. Both degrees include the opportunity to obtain a concentration in Secondary Teacher Certification.

BS in Chemistry The requirement to obtain a BS in Chemistry consists of the general College of Science requirements plus the following specific requirements:

Major (44 semester hours including 32 semester hours of upper-division courses): CHEM 1305- CHEM 1105, CHEM 1306- CHEM 1106, CHEM 2101, CHEM 2261- CHEM 2161, CHEM 3310- CHEM 3110, CHEM 3321- CHEM 3221, CHEM 3322- CHEM 3222, CHEM 3351- CHEM 3151, CHEM 3352- CHEM 3152, CHEM 4211- CHEM 4212, CHEM 4365, CHEM 4330 or CHEM 4332

Minor: If the minor is biology, BIOL 1305- BIOL 1107, BIOL 1306- BIOL 1108, BIOL 3318, and BIOL 3320 are required, plus additional course work to meet the minimum standard of 18 semester hours. Other acceptable minors are computer science, environmental science, geology, mathematics, physics, and secondary education.

Additional Science: PHYS 2410 and PHYS 2411 are required. If physics is the minor, the additional science requirement may be met by BIOL 1305- BIOL 1107, BIOL 1306- BIOL 1108; or GEOL 1301- GEOL 1101 (or GEOL 1303), GEOL 1302- GEOL 1102 (or GEOL 1304).

Other: CS 1401 or CS 1420, MATH 1312, and MATH 2313 are required.

Secondary Education Concentration

Major: The requirement of CHEM 4330 or CHEM 4332 is waived. (This may affect the ACS certification of the BS in Chemistry.)

Minor: This concentration requires a minor in secondary education.

Other: PHYS 2410- PHYS 2411 is required. The recommended 12 semester hour supporting field is physics, and consists of PHYS 1120, PHYS 2410, PHYS 2411, and PHYS 3325. If so, the additional science requirement may be met by BIOL 1305- BIOL 1107, BIOL 1306- BIOL 1108; or GEOL 1301- GEOL 1101 (or GEOL 1303), GEOL 1302- GEOL 1102 (or GEOL 1304). Other 12 semester hour supporting fields may be biology, geology, or mathematics; if so, PHYS 2410 and PHYS 2411 may be used as the additional science.

BA in Chemistry

See the College of Liberal Arts section of this catalog for the general requirements for the BA degree. Secondary Teaching Certification in chemistry may also be obtained through these Colleges. A minor in the College of Liberal Arts requires nine semester hours of upper-division course work. The major may be selected from two concentrations:

General: The specific courses required are (33 semester hours including 25 semester hours of upper-division courses) CHEM 1305- CHEM 1105, CHEM 1306- CHEM 1106, CHEM 3310- CHEM 3110, CHEM 3321- CHEM 3221, CHEM 3322- CHEM 3222, CHEM 3351- CHEM 3151, CHEM 3352- CHEM 3152, plus 3 semester hours selected from CHEM 4211, CHEM 4212, CHEM 4328, CHEM 4330, CHEM 4332, CHEM 4362, CHEM 4365, CHEM 4176, CHEM 4376, or CHEM 4380.

Pre-Medical/Pre-Dental: The specific courses required are (31 semester hours including 23 semester hours of upper-division courses) CHEM 1305- CHEM 1105, CHEM 1306- CHEM 1106, CHEM 3310- CHEM 3110, CHEM 3324- CHEM 3124, CHEM 3325- CHEM 3125; plus 9 semester hours selected from CHEM 3351- CHEM 3151, CHEM 3352 - CHEM 3152, CHEM 4211- CHEM 4212, CHEM 4328, CHEM 4330, CHEM 4332, CHEM 4362, CHEM 4365, CHEM 4176,

CHEM 4376, or CHEM 4380.

Minor in Chemistry

A minor in chemistry requires CHEM 1305- CHEM 1105, CHEM 1306- CHEM 1106, and an additional minimum of 10 semester hours, including at least 8 (9 for a BA degree) upper-division hours. Majors in mathematics or physics may select from CHEM 2261- CHEM 2161, CHEM 3321- CHEM 3221, CHEM 3322- CHEM 3222, CHEM 3310- CHEM 3110, CHEM 3351- CHEM 3151, or CHEM 3352- CHEM 3152. Other majors may select from CHEM 3324- CHEM 3124, CHEM 3325- CHEM 3125, CHEM 4330, or CHEM 4332.

Five-Year BS-MS Program

The curriculum for the BS degree in Chemistry can be completed in three and one-half years. After admission to the Graduate School of the University, it is possible to obtain the MS degree at the end of the 5th year of study in chemistry. Qualified students should consult their academic advisor about the course of study and regarding various forms of financial assistance obtainable through this program.

BS Degree with Departmental Honors in Chemistry

A candidate for Departmental Honors in chemistry will have demonstrated ability in chemistry, will have maintained a GPA of 3.0 by the end of the junior year, and will maintain this average until graduation. The main requirement for Departmental Honors will be the satisfactory completion of an Honors Thesis based on research in chemistry. Usually this research will be carried out under the direction of a member of the faculty of the Department of Chemistry or a suitable faculty member from another department of the University. The satisfactory completion of the Honors thesis will be judged by the thesis-research director in conjunction with the Departmental Honors Committee. Other faculty and outside referees may be consulted if it is deemed to be appropriate to do so.

The candidate for Departmental Honors must request approval of candidacy during the second semester of the junior year. The Department of Chemistry reserves the right to accept or not accept a qualified student taking into consideration the number of applicants, the number of available faculty, and the competence of an individual student. The accepted honors candidate will enroll in CHEM 4176 or CHEM 4376 during both semesters of the senior year and will have accumulated a total of 6 hours of CHEM 4176 and CHEM 4376 credit on completion of the honors program. Other regulations, procedures, and dates for use by honors candidates are available from the Chairperson, Department of Chemistry.

Advising/Placement

All chemistry majors are required to consult with and have their enrollment approved by their department advisor before every enrollment.

All entering freshman students with at least one year of high school chemistry with an "A" or "B" in chemistry and an SAT score of at least 1000 may take an Achievement Examination given by the department. If a student scores 80 or above, he will be given the corresponding grade AND credit for CHEM 1305.

An entering freshman student with two years of high school chemistry with grades of "A" or "B" and an SAT score of at least 1000 may take Achievement Examinations given by the department over CHEM 1305 and CHEM 1306. If the score is 80 or above, the corresponding grade and credit for CHEM 1305 and CHEM 1306 will be given.

An entering freshman student with the above qualifications and with scores less than 80 on the Achievement Examination may at the discretion of the department be allowed to enter the next higher course without credit granted.

Chemistry (CHEM)

1105 Laboratory for Chemistry 1305 (0-3)
(Common Course Number CHEM 1111) Prerequisite: CHEM 1305 if required in student's degree plan. CHEM 1305 may be taken concurrently with CHEM 1105. Laboratory fee required.

1106 Laboratory for Chemistry 1306 (0-3)
(Common Course Number CHEM 1112) Prerequisite: CHEM 1306 if required in student's degree plan. CHEM 1306 may be taken concurrently with CHEM 1106. Laboratory fee required.

1305 General Chemistry (3-0)
(Common Course Number CHEM 1311)
The basic laws and theories of chemistry: characterization of the elements and their most important compounds. For students who need a foundation for work in advanced chemistry and related sciences. Prerequisites: MATH 1410 or MATH 1508 or a math SAT score of at least 600; and, if required in student's degree

plan, CHEM 1105. MATH 1508 and/or CHEM 1105 may be taken concurrently with CHEM 1305.

1306 General Chemistry (3-0)
(Common Course Number CHEM 1312)
A continuation of CHEM 1305. Includes substantial coverage of chemical kinetics and thermodynamics. Prerequisites: CHEM 1305, CHEM 1105, CHEM 1106, and MATH 1410 or MATH 1508 or a math SAT score of at least 600. CHEM 1106 may be taken concurrently with CHEM 1306.

1407 Introductory Chemistry (3-3)
(Common Course Number CHEM 1405)
Basic concepts relating to composition, structure, and transformation of matter. Satisfies the chemistry requirement for nursing. Students who need a foundation for work in advanced chemistry and related sciences or engineering fields should take CHEM 1305, CHEM 1105, CHEM 1306, and CHEM 1106. Prerequisite: MATH 0311 or an adequate score on a placement examination. MATH 0311 may be taken concurrently with CHEM 1407. Laboratory fee required.

1408 Introductory Chemistry (3-3)
(Common Course Number CHEM 1407)
A continuation of CHEM 1407. Includes surveys of organic chemistry and biochemistry. Prerequisites: MATH 0311 (or an adequate score on a placement examination) and CHEM 1407. CHEM 1407 may be taken concurrently with CHEM 1408. Laboratory fee required.

2101 Molecular Modeling and Chemical Information (0-3)
Introduction to computational methods for molecular visualization, structure optimization, and modeling; includes strategies for chemical data analysis and obtaining chemical information from the Internet and conventional sources. Prerequisites: CHEM 1306, CHEM 1106, and department approval.

2161 Laboratory for CHEM 2261 (0-3)
Laboratory fee required.

2261 The Periodic Table (2-0)
A survey course that expounds the principles of periodicity in the descriptive chemistry of the elements. Among the areas covered will be the alkali and alkaline earth metals, the carbon/silicon/germanium/tin and lead group, the chemistry of nitrogen, phosphorus, and the halogens. Where possible, pertinent technical applications of the elements, and materials derived from them, will be presented, e.g., medicinal, inorganic polymer, and semi-conductor applications. Prerequisites: CHEM 1306- CHEM 1106.

General Prerequisite: All required lower-division courses in the major should be completed with a "C" or better in order to enroll in upper-division courses in the major. Some upper-division courses may be applied toward graduate degrees; consult the Graduate Studies Catalog for the listing of these courses.

3110 Laboratory for Chemistry 3310 (0-4)
Prerequisite: CHEM 3310. CHEM 3310 may be taken concurrently with CHEM 3110. Laboratory fee required.

3124 Laboratory for Chemistry 3324 (0-3)
Prerequisite: CHEM 3324. CHEM 3324 may be taken concurrently with CHEM 3124. Laboratory fee required.

3125 Laboratory for Chemistry 3325 (0-3)
Prerequisite: CHEM 3325. CHEM 3325 may be taken concurrently with CHEM 3125. Laboratory fee required.

3151 Laboratory for Chemistry 3351 (0-4)
Prerequisite: CHEM 3351 if required in student's degree plan. CHEM 3351 may be taken concurrently with CHEM 3151. Laboratory fee required.

3152 Laboratory for Chemistry 3352 (0-4)
Prerequisite: CHEM 3352 if required in student's degree plan. CHEM 3352 may be taken concurrently with CHEM 3152. Laboratory fee required.

3221 Laboratory for Chemistry 3321 (0-6)
Prerequisite: CHEM 3321. CHEM 3321 may be taken concurrently with CHEM 3221. Laboratory fee required.

3222 Laboratory for Chemistry 3322 (0-6)
Prerequisite: CHEM 3322. CHEM 3322 may be taken concurrently with CHEM 3222. Laboratory fee required.

3310 Analytical Chemistry (3-0)
Quantitative measurements and calculations, chemical equilibrium as applied to analyses and separations. This course is designed for chemistry majors. Prerequisites: CHEM 3322, CHEM 3351, CHEM 3110, MATH 2313, and PHYS 2411. CHEM 3351, CHEM 3110, and MATH 2313 may be taken concurrently with CHEM 3310.

3321 Organic Chemistry (3-0)
A study of chemical bonding and structure in organic molecules, functional group synthesis and reactions, reaction mechanisms, nomenclature, stereochemistry, and isomerism. Intended for chemistry majors and others requiring a comprehensive approach to organic chemistry. May not be counted in addition to CHEM 3324. Prerequisites: CHEM 1306- CHEM 1106 and CHEM 3221. CHEM 3221 may be taken concurrently with CHEM 3321.

3322 Organic Chemistry (3-0)
A continuation of CHEM 3321. Intended for chemistry majors and others requiring a comprehensive approach to organic chemistry. May not be counted in addition to CHEM 3325. Prerequisites: CHEM 3321- CHEM 3221 and CHEM 3222. CHEM 3222 may be taken concurrently with CHEM 3322.

3324 Organic Chemistry (3-0)
A study of the fundamental types of carbon compounds. Intended for students not requiring the detailed comprehensive courses specified for the BS degree in Chemistry. May not be counted in addition to CHEM 3321. Prerequisites: CHEM 1306- CHEM 1106 and CHEM 3124. CHEM 3124 may be taken concurrently with CHEM 3324.

3325 Organic Chemistry (3-0)
A continuation of CHEM 3324 with emphasis on organic compounds and their reactions in living systems. May not be counted in addition to CHEM 3322. Prerequisites: CHEM 3324 and CHEM 3125. CHEM 3125 may be taken concurrently with CHEM 3325.

3351 Physical Chemistry (3-0)
Chemical thermodynamics. Prerequisites: CHEM 1306- CHEM 1106, CHEM 3151, MATH 2313, and PHYS 2411. CHEM 3151 and MATH 2313 may be taken concurrently with CHEM 3351.

3352 Physical Chemistry (3-0)
A continuation of CHEM 3351. Quantum chemistry and spectroscopy. Prerequisites: CHEM 3351- CHEM 3151 and CHEM 3152. CHEM 3152 may be taken concurrently with CHEM 3352.

4165 Laboratory for Inorganic Chemistry (0-4)
Provides laboratory practical exposure for students taking Inorganic Chemistry 4365. Prerequisite: CHEM 4365. CHEM 4365 may be taken concurrently with CHEM 4165. Laboratory fee required.

4176 Introduction to Research (0-0-3)

4376 Introduction to Research (0-0-9)
Credit will be granted only upon completion of research in the senior year on the recommendation of the head of the Chemistry Department. May be repeated for credit up to a total of 6 credit hours of CHEM 4176 and CHEM 4376. All credit accrued will be counted as elective hours only. Prerequisite: Instructor approval. Fees required.

4211 Instrumental Methods of Analytical Chemistry (2-0)
A study of the more important optical and electrical methods of chemical analysis. Prerequisites: CHEM 3352- CHEM 3152 and CHEM 4212. CHEM 4212 may be taken concurrently with CHEM 4211.

4212 Laboratory for Chemistry 2411 (0-6)
Prerequisite: CHEM 4211. CHEM 4211 may be taken concurrently with CHEM 4212. Laboratory fee required.

4328 Advanced Topics in Organic Chemistry (3-0)
Selected topics at the undergraduate level which are not usually covered in introductory courses in organic chemistry. Course may be repeated for credit when topics vary. Prerequisite: CHEM 3322 or CHEM 3325.

4330 Biochemistry: Structure and Function (3-0)
A study of the major classes of biomolecules, including amino acids, proteins, nucleic acids, carbohydrates and lipids with introductions to biochemical techniques and enzyme kinetics. Prerequisite: CHEM 3322 or CHEM 3325.

4332 Biochemistry: Dynamics and Information (3-0)
Investigation of enzyme function, bioenergetics, metabolism, and the molecular aspects of replication, transcription, and translation. Prerequisite: CHEM 3322 or CHEM 3325. CHEM 4330 is recommended but not required as a prerequisite.

4362 Structure of Matter (3-0)
Introduction to quantum theory; atomic and molecular structure; atomic and molecular spectra; chemical bonding. Prerequisites: (1) PHYS 2411 and CHEM 3352 or (2) instructor approval.

4365 Inorganic Chemistry (3-0)
Principles of molecular structure and chemical reactivity of inorganic compounds; coordination chemistry and introduction to ligand field theory; kinetics and mechanisms of inorganic reactions; organometallic compounds;

chemistry of nonmetals and physical methods in inorganic chemistry.
Prerequisites: CHEM 3322 and CHEM 3352.

See the Graduate Studies Catalog for graduate programs and courses.

COLLEGE OF SCIENCE

- College Information
- Biological Sciences
- Chemistry
- Geological Sciences
- Mathematical Sciences
- Physics

Dr. Thomas E. Brady, Dean
Dr. Larry P. Jones, Associate Dean
Dr. Pablo Arenaz, Associate Dean for Entering Students
Dr. Jorge A. Lopez, Assistant Dean

Bell Hall, Room 100
Phone: (915) 747-5536
Fax: (915) 747-6807
E-mail: science@utep.edu

Geological Sciences

101C Geology Bldg.
Phone: (915) 747-5501
E-mail: mail@geo.utep.edu

CHAIRPERSON: Kate C. Miller
PROFESSOR EMERITUS: Robert F. Roy
PROFESSORS: Clark, Doser, Hoffer, Keller, LeMone, Pingitore, Schmidt
ASSOCIATE PROFESSORS: Anthony, Cornell, Goodell, Miller
ASSISTANT PROFESSORS: Andronicos, Langford, Schulze-Makuch

Baccalaureate Degrees

The department of Geological Sciences offers both the BA and BS degrees in Geological Sciences and the BS in Geophysics and Earth Science. The BS in Earth Science degree includes the opportunity to obtain a concentration in Secondary Teacher Certification.

BS in Geological Sciences

The requirement to obtain the BS in Geological Sciences consists of the general College of Science requirements plus the following specific requirements:
Major (a minimum of 42 semester hours including 26 semester hours of upper-division course work): GEOL 1301- GEOL 1101 (or GEOL 1303), GEOL 1302- GEOL 1102 (or GEOL 1304), GEOL 2411, GEOL 2412, GEOL 3315, GEOL 3420, GEOL 3423, GEOL 3325, and GEOL 4665 plus 6 to 8 additional semester hours in geology or geophysics at the senior level. Only 3 of these 6 to 8 units may be from Senior Thesis or Directed Study.
Minor: Acceptable minors are Anthropology, Biology, Chemistry, Computer Science, Mathematics, and Physics.
Other: CHEM 1305- CHEM 1105, CHEM 1306- CHEM 1106, CS 1401 or CS 1420; MATH 1312, PHYS 2410- PHYS 1120, and PHYS 2411- PHYS 1121 are required.

Environmental Geoscience

The department offers a group of courses designed for geological sciences or geophysics majors planning careers in the environmental field. When used to fulfill the elective requirements in geological sciences called for in these majors, these courses will provide the graduate with a strong contemporary background in those areas most critical to environmental investigations and problem solving. These courses include GEOL 4316 (Geochemistry), GEOL 4380 (Environmental Geology and Geophysics), GEOP 4334 (Exploration Geophysics: Non-seismic Methods), and GEOL 4399 (Senior Thesis).

BS in Geophysics

The requirement to obtain the BS in Geophysics consists of the general College of Science requirements plus the following specific requirements:
Major (a minimum of 40 semester hours including 30 semester hours of upper-division course work): GEOL 1301- GEOL 1101 (or GEOL 1303), GEOL 1302- GEOL 1102 (or GEOL 1304), GEOL 2411, GEOL 3315, GEOL 3423, GEOL 3325, GEOL 4665, GEOP 4332, GEOP 4334, plus 8 semester hours of upper-division course work in computer science, engineering, geological sciences, mathematics, physics.
Minor (19 semester hours including nine semester hours of upper-division course work): A Physics minor is required, consisting of PHYS 2410- PHYS 2411, PHYS 1120- PHYS 1121, PHYS 3351, PHYS 4328, and PHYS 4341.
Other: CHEM 1305- CHEM 1105, CHEM 1306- CHEM 1106; CS 1401 or CS 1420; MATH 1312, MATH 2313, MATH 2326, and MATH 4336 are required.

BS in Earth Science

This degree is designed primarily for students seeking Secondary Teacher Certification, not those wishing to be professional geologists or planning to continue their education in the field. The requirement to obtain the BS in Earth Science consists of the general College of Science requirements plus the following specific requirements:
Major (a minimum of 36 semester hours including 21 semester hours of upper-division course work): GEOL 1301- GEOL 1101 (or GEOL 1303), GEOL 1302- GEOL 1102 (or GEOL 1304); GEOL 2411 or GEOL 3405; GEOL 3420 (or GEOL 3380); GEOL 3355; GEOG 3306, ASTR 1307- ASTR 1107, and upper-division courses in geological sciences as needed to meet the 36-hour major requirement.
Minor: Secondary Education is the recommended minor. Other minors may be selected with consultation with the undergraduate advisor from biology, chemistry, mathematics, or physics.

Other: CHEM 1305- CHEM 1105 and CHEM 1306- CHEM 1106 are required. If chemistry is the minor, BIOL 1305- BIOL 1107 and BIOL 1306- BIOL 1108; or PHYS 1403- PHYS 1404 (or PHYS 2410- PHYS 2411) may be used as the additional science.
Secondary Education Concentration: This concentration requires a minor in secondary education. Biology or chemistry is recommended as the 12-semester hour supporting field. If chemistry is not the supporting field, the required CHEM 1305- CHEM 1105, CHEM 1306- CHEM 1106 may be used as the second science. Otherwise, (1) BIOL 1305- BIOL 1107 and BIOL 1306- BIOL 1108; or (2) PHYS 1403- PHYS 1404 (or PHYS 2410- PHYS 2411) may be used as the additional science.

BA in Geological Sciences

See the College of Liberal Arts section of this catalog for the general requirements for the BA degree. The specific courses required for the major are (a minimum of 30 semester hours including 20 semester hours of upper-division course work) GEOL 1301- GEOL 1101 (or GEOL 1303), GEOL 1302- GEOL 1102 (or GEOL 1304), GEOL 2412, GEOL 3405 (or GEOL 2411 and GEOL 3315), GEOL 3380 (or GEOL 3420), GEOL 3355 (or GEOL 3423), GEOL 3325, plus a minimum of 6 hours of additional upper-division GEOL courses. MATH 1508 is required and other science courses must included two of the following: CHEM 1305- CHEM 1105, PHYS 1403 (or PHYS 2410), BIOL 1305- BIOL 1107.

Minor in Geology

A minor in geology requires GEOL 1301- GEOL 1101 (or GEOL 1303), GEOL 1302- GEOL 1102 (or GEOL 1304), GEOL 2412, and an additional minimum of 6 to 8 upper-division semester hours selected from GEOL 2411 and GEOL 3315 (or GEOL 3405), GEOL 3420 (or GEOL 3380), GEOL 3423 (or GEOL 3355), GEOP 4332 (or GEOP 4334).

"C" Rule

Students must earn a grade of "C" or better in all courses taken within the Department of Geological Sciences that are used to satisfy the above Geology and Geophysics degree requirements. Continuation in sequence courses (such as GEOL 3315) after receiving a "D" in one of these courses is permitted with permission of the instructor. A student receiving a grade of "D" in a required course must repeat the course at its earliest offering. Students receiving consecutive grades of "D" will not be allowed to continue sequence courses until grades of "C" or better have been earned in the appropriate courses. A minimum GPA of 2.0 must be achieved in required science courses taken outside the Geological Sciences department.

Departmental Research

All undergraduate students are encouraged to complete a research experience. The preferred option is completion of a Senior's Thesis (GEOL 4399). However, an appropriate Directed Study (GEOL 4166- GEOL 4366 or GEOP 4167- GEOP 4367) or Undergraduate Research (GEOL 4189- GEOL 4389) course also fulfills this requirement.

Departmental Honors in Geology or Geophysics

The main requirements for Departmental Honors in Geology or Geophysics will be the satisfactory completion of a Senior Thesis based upon research in geology or geophysics, maintenance of a 3.25 GPA or better until graduation, and the presentation of a seminar on the thesis topic. The research will be carried out under the direction of a member of the faculty of the Department of Geological Sciences. The satisfactory completion of the Senior Thesis will be judged by the thesis-research director and the Departmental Honors Committee. Policies and procedures of the Honors degree will be administered by the Departmental Honors Committee. Departmental Honors may be awarded with or without other University honors.

Geography (GEOG)

1106 Laboratory for Geography 1306 (0-2)

Required for minors in geography and students who select the geography option to fulfill the natural science component of the University Core Curriculum. It is optional to all other students. GEOL 1106 may be taken concurrently with GEOG 1306. Laboratory fee required.

1306 Physical Geography (3-0)
(Common Course Number GEOG 1301) Introduction to features and processes of the atmosphere, hydrosphere, biosphere, and lithosphere, with emphasis on spatial (distribution) patterns, and interactions between the four earth realms and human activities. The course culminates in a discussion of global environmental regions. Required of all minors in geography. Minors should take GEOG 1106 concurrently.

1310 Cultural Geography (3-0)

(Common Course Number GEOG 1302) Introduction to cultural elements, their spatial distribution, and their interrelationship to the physical environment. This course is identical to ANTH 1310.

General Prerequisite: Junior standing for all upper-division courses.

3306 Weather and Climate (3-0)
Study of the components of weather, weather processes, and measurement, climate elements and control factors; geographic classification of climates and natural vegetation on the earth's surface. Prerequisite: GEOG 1306 or GEOL 1303 or GEOL 1301 or instructor approval.

3312 Geography of Latin America (3-0)
Study of the physical and cultural features which characterize the economic, social, and political geography of Latin America. Prerequisites: GEOG 1306 and GEOG 1310, or instructor approval.

4307 Geography of Arid Lands (3-0)
A study of the physical complexes of the world's dry regions. Salient factors emphasized include climate, land forms, water, soils, natural vegetation, and various aspects of human occupance. Prerequisite: GEOG 1306 or GEOG 1310 or GEOL 1303 or instructor approval. GEOG 3306 recommended.

Geology (GEOL)

1101 Laboratory for Geology 1301 (0-2)
(Common Course Number GEOL 1103) Concurrent enrollment in GEOL 1301 suggested. Laboratory fee required.

1102 Laboratory for Geology 1302 (0-3)
(Common Course Number GEOL 1104) Prerequisite: GEOL 1101. Concurrent enrollment in GEOL 1302 suggested. Laboratory fee required.

1301 Introduction to Physical Geology (3-0)
(Common Course Number GEOL 1303) An introductory study of the earth's composition, structure, and internal and external processes. Concurrent enrollment in laboratory (GEOL 1101) suggested but not required. A student may not receive credit for both GEOL 1301 and GEOL 1303.

1302 Introduction to Historical Geology (3-0)
(Common Course Number GEOL 1304) An integrated study of the geologic history of the earth with a consideration of the history of life as documented by the fossil record. Concurrent enrollment in laboratory (GEOL 1102) suggested but not required. A student may not receive credit for both GEOL 1302 and GEOL 1304. Prerequisite: GEOL 1301.

1303 Principles of Earth Sciences (2-2)
(Common Course Number GEOL 1301) Study of the earth as a planet. A survey of the physical processes operating in the atmosphere, lithosphere, and biosphere. Includes an introduction to meteorology, physical geology, soils, and vegetation. Concurrent laboratory enrollment is required. A student may not receive credit for both GEOL 1303 and GEOL 1301. Laboratory fee required.

1304 Principles of Earth Sciences (2-2)
(Common Course Number GEOL 1302) Study of the earth as a planet. A survey of earth history as interpreted from and exhibited by plants, animals, rocks, and minerals; a study of the earth in space; a survey of the physical processes operating in the hydrosphere. Includes an introduction to historical geology, astronomy, physiography, and oceanography. Concurrent laboratory enrollment is required. A student may not receive credit for both GEOL 1304 and GEOL 1302. Prerequisite: GEOL 1303. Laboratory fee required.

2314 Geological Microscopy (2-3)
Study of rock-forming minerals and crystals with the petrographic microscope. Prerequisite: GEOL 2411. Laboratory fee required.

2411 Mineralogy and Petrology (3-3)
(Common Course Number GEOL 2409) Study of the crystallography, physical properties, classification, and identification of rock-forming minerals and ores. Prerequisite: CHEM 1305 with a grade of "C" or better. Laboratory fee required.

2412 Geoscience Processes (3-3)
Field-oriented, problem-solving studies emphasizing field identification of rocks; study of landforms and processes that create them and the use of maps, aerial photographs, and satellite imagery. Emphasis on developing observational and analytical skills and the use of multiple working hypotheses. Prerequisites: (1) GEOL 1301, GEOL 1101, GEOL 1302, GEOL 1102 or (2) GEOL 1303 and GEOL 1304.

General Prerequisite: Junior standing for all upper-division courses. All required lower-division courses in the major should be completed with a "C" or better in order to enroll in upper-division courses in the major. Some upper-division courses may be applied toward graduate degrees; consult the Graduate Studies Catalog for the listing of these courses.

3311 Geology of El Paso (2-3)
An introduction to the stratigraphy, tectonicic p history, paleontology, and geomorphology and geoscience-related environmental issues of the El Paso area. Lectures will stress use of basic geologic principles to develop understanding of the geologic processes which have shaped the area. Laboratory will consist of a series of field trips during the semester. Students whose degree plans require GEOL 4665 may use this course for elective credit only. Prerequisites: (1) GEOL 1303 and GEOL 1304 or (2) GEOL 1301 and GEOL 1302. Laboratory fee required.

3315 Igneous and Metamorphic Petrology (2-3)
Petrogenesis of igneous and metamorphic rocks, including the thermodynamics and physical properties of minerals and metals and the petrography of samples in thin-section. Prerequisites: GEOL 2411 and CHEM 1305. MATH 1411 recommended. Laboratory fee required.

3321 Geology for Engineers (2-3)
The principles of physical geology and their practical applications to civil engineering. This course cannot be counted as a required upper-level course in Geology. Prerequisite: Junior standing in engineering or instructor's approval. Laboratory fee required.

3325 Sedimentology (2-3)
An introduction to sedimentary processes, environments, and deposits. Ancient deposits and modern analogs are examined in the field. Laboratory work will introduce techniques for the study of sediments and sedimentary rocks. Prerequisite: GEOL 2411 or instructor approval. Laboratory fee required.

3330 Applied Geomorphology (2-3)
An introduction to the genesis of landforms and the processes that shape the earth's surface. Geomorphic data are applied to solving environmental problems. Topics include earth surface processes, internal forces, climate and climatic change, weathering, mass movement and erosion, channels and stream channel evolution, drainage basins, fluvial landforms, coastal landforms, arid landforms, and glacial landforms. Prerequisite: GEOL 2314. Laboratory fee required.

3340 Vulcanology (3-0)
A study of the origin, eruption patterns, and products of volcanoes. Discussion of thermal energy resources. Students whose degree plans require GEOL 4665 may use this course for elective credit only. Prerequisite: GEOL 1301 or GEOL 1303 or GEOL 3321.

3345 Planetary Geology (3-0)
A survey of the composition, evolution, and geologic features of planetary bodies in the solar system. Heavy use is made of resources on the Internet. Prerequisites: (1) GEOL 1301- GEOL 1101 (or GEOL 1303) or (2) GEOL 3405 or (3) GEOL 3321.

3350 Oceanography (3-0)
Introduction to submarine geology, physical and chemical oceanography, marine organisms, marine resources, shore processes, and methods of marine technology. Students whose degree plans require GEOL 4665 may use this course for elective credit only. Prerequisite: GEOL 1301 or GEOL 1303 or GEOL 3321.

3355 Structure of the Earth (2-3)
An introduction to geological and geophysical methods employed to study the structure of the earth. Structures at all scales will be studied. The emphasis will be on how plate tectonics operates to form the structures we see at the surface and how we delineate deep structures. Students whose degree plans require GEOL 4665 may use this course for elective credit only. Prerequisite: GEOL 1301 or GEOL 1303 or GEOL 3321. Laboratory fee required.

3359 Minerals, Economics and the Environment (3-0)
Geological characteristics and classification of metallic, non-metallic, and fuel resources. Economic factors and problems related to development. Students whose degree plans require GEOL 4665 may use this course for elective credit only. Prerequisites: (1) GEOL 1301 and GEOL 1101 (or GEOL 1303) or (2) GEOL 3405 or (3) GEOL 3321.

3360 Geology and the Environment (3-0)
A study of the applications of the science of geology to the problems of urban development and environmental control. Prerequisite: GEOL 1301 or GEOL 1303 or GEOL 3321 or instructor approval. For non-majors.

3380 Fossils (2-3)
Survey of the evolution of ancient life on earth and the consideration of the practical application of fossils as time and environmental indicators as revealed by the rock record. Not open to students whose degree plans require GEOL 4665. Prerequisite: GEOL 1302 or GEOL 1304. Laboratory fee required.

3405 Rocks and Minerals (2-6)
Hand specimen, microscopic, and field study of the common rock-forming minerals; and of igneous, metamorphic, and sedimentary rocks. Prerequisites:

(1) GEOL 1303, (2) GEOL 1301 and GEOL 1101, or (3) instructor approval. Laboratory fee required.

3420 Invertebrate Paleontology (3-3)
A survey of the classification, paleoecology, and stratigraphic distribution of fossil invertebrates. Prerequisites: (1) GEOL 1302 and GEOL 1102 or (2) GEOL 1304 or (3) GEOL 3405 or instructor approval. Laboratory fee required.

3423 Structural Geology (3-6)
An introduction to the recognition, description, and analysis of deformed rocks, spanning the spectrum from microscopic structures to mountain belts and plate tectonics. Geometric and stereographic analysis of map-scale structures. Introduction to stress, strain, and constitutive laws for rocks. Processes of rock deformation including folding, fracturing, and grain-scale processes. Correlation of structural styles with tectonic environments. Prerequisites: (1) GEOL 1301- GEOL 1101 and GEOL 1302- GEOL 1102, and GEOL 2412, or (2) GEOL 1303 and GEOL 1304, and GEOL 2412, or (3) instructor approval. PHYS 2410 recommended. Fees required.

4155 Vertebrate Paleontology Techniques (0-3)
Collection, preservation, identification, and curation of vertebrate fossils. This course is identical to ZOOL 4155. Prerequisite: GEOL 4354. GEOL 4354 may be taken concurrently with GEOL 4155. Laboratory fee required.

4157 Advanced Vertebrate Paleontology Techniques (0-3)
Collection, preservation, identification, and curation of vertebrate fossils. This course is identical to ZOOL 4157. Prerequisite: GEOL 4356. GEOL 4356 may be taken concurrently with GEOL 4157. Laboratory fee required.

4166 Directed Study, Geology (0-0-1)

4266 Directed Study, Geology (0-0-2)

4366 Directed Study, Geology (0-0-3)
Directed study problems in geology; hours and subjects to be arranged with each student; for undergraduate students who wish to do special work on a special problem. No student may receive credit for more than six hours of directed study work. Application of a directed study towards required upper division elective hours in the major is subject to prior approval by the departmental undergraduate studies committee. Prerequisite: Instructor approval.

4189 Research in Geological Sciences (0-0-1)

4289 Research in Geological Sciences (0-0-2)

4389 Research in Geological Sciences (0-0-3)
This course provides undergraduates with a research experience working with a faculty mentor. It cannot be used to satisfy minimum degree requirements. Grade of S or U. Requires advising from an instructor.

4315 Topics in Geological Sciences (3-0)
Study of topics in fields such as structural geology, environmental geosciences, economic geology, paleontology, petrology, and geochemistry. May be repeated when topics vary. Prerequisite: Instructor approval.

4316 Geochemistry (3-0)
Low-Temperature aqueous geochemistry emphasizing the chemistry and chemical processes in ground and surface water important as water supplies or supporting important ecosystems, rock- and soil-fluid interactions important in determining water chemistry, and waste-rock-fluid system chemistry and processes. Prerequisites: CHEM 1305 and CHEM 1306.

4354 Paleozoic and Mesozoic Vertebrate Paleontology (3-0)
Study of evolution, biologic history, biostratigraphy, and classification of Paleozoic and Mesozoic vertebrates with emphasis on the lower vertebrates with an introduction to early mammalian development. This course is identical to ZOOL 4354. Prerequisites: (1) GEOL 1302 and GEOL 1102 (or GEOL 1304), (2) ZOOL 2406 (or BIOL 1306 and BIOL 1108), or (3) instructor approval; GEOL 4155. GEOL 4155 may be taken concurrently with GEOL 4354.

4356 Cenozoic Vertebrate Paleontology (3-0)
Study of the evolution, biologic history, biostratigraphy, and classification of the Cenozoic vertebrates with major emphasis on the mammals. This course is identical to ZOOL 4356. Prerequisites: (1) GEOL 1302 and GEOL 1102 (or GEOL 1304), (2) ZOOL 2406 (or BIOL 1306 and BIOL 1108), or (3) instructor approval; GEOL 4157. GEOL 4157 may be taken concurrently with GEOL 4356.

4362 Stratigraphy (2-3)
A study of the fundamental principles of stratigraphy with special emphasis on the stratigraphy of Southwestern United States and Northern Mexico. Prerequisites: (1) GEOL 3325 and GEOL 3420 or (2) instructor approval. Laboratory fee required.

4380 Environmental Geology and Geophysics (2-4)
Geology and geophysics applied to environmental studies with emphasis on site characterization. Subjects include surficial processes, tectonic processes, general hydrology, soils data collection and analysis. Prerequisite: GEOL 3423 or GEOL 3321 or instructor approval. Laboratory fee required.

4383 General Hydrogeology (3-0)
An introduction to the hydrosphere, which consists of surface water, groundwater, and water in the atmosphere. Topics include evaporation, transpiration, weather and climate, precipitation, runoff, flooding, infiltration, groundwater migration in the vadose and phreatic zones, regional groundwater flow, fluid mechanics, water quality, and applications other geologic disciplines. Prerequisite: GEOL 2411 or GEOL 3321.

4384 Nuclear Waste Disposal (3-0)
Examination of the problems involved in the control of nuclear waste. Characterization, treatment, shipping, and permanent disposal of the nuclear waste will be discussed. The problems of decontamination, decommissioning, and site restoration, as well as quality assurance and control of nuclear waste, will be examined. Prerequisite: Upper-division standing in the College of Science or the College of Engineering or instructor approval.

4399 Senior's Thesis (0-0-3)
Guided program of research culminating in the writing of a senior thesis.

4665 Field Geology (Summer Field Course) (0-0-32)
A six-week summer course in field geology. The work will include preparation of topographic and geologic maps, cross-sections, columnar sections, and detailed structural studies of areas embracing both sedimentary and igneous rocks; plane table and aerial photo mapping techniques will be used. A report will be required of each student. Thirty-two hours of field work per week. Prerequisites: GEOL 3315, GEOL 3420, and GEOL 3423. Transportation fee varies.

Geophysics (GEOP)

General Prerequisite: Junior standing for all upper-division courses. All required lower-division courses in the major should be completed with a grade of "C" or better in order to enroll in upper-division courses in the major. Some upper-division courses may be applied toward graduate degrees; consult the Graduate Studies Catalog for the listing of these courses.

4167 Directed Study, Geophysics (0-0-1)

4267 Directed Study, Geophysics (0-0-2)

4367 Directed Study, Geophysics (0-0-3)
Directed study problems in geophysics; hours and subjects to be arranged with each student; for undergraduate students who wish to work on a special problem. No student may receive credit for more than six hours of directed study work. Application of a directed study towards required upper division elective hours in the major is subject to prior approval by the departmental undergraduate studies committee. Prerequisite: Instructor approval.

4332 Exploration Geophysics: Seismic Methods (2-3)
A detailed treatment of seismic prospecting for oil and minerals, includes principles and current practices in seismic refraction and reflection prospecting, as well as related aspects of acoustic logging and other subsurface techniques. Prerequisites: (1) GEOL 1301- GEOL 1101 or GEOL 1303, (2) GEOL 3321, MATH 1312, PHYS 2410, and PHYS 2411, or (3) instructor approval. Laboratory fee required.

4334 Exploration Geophysics: Non-Seismic Methods (2-3)
A quantitative treatment of gravity and magnetic fields of the earth as applied to exploration for oil and minerals. Some coverage of nuclear and electrical methods of prospecting. Prerequisites: (1) GEOL 1301- GEOL 1101 or GEOL 1303, (2) GEOL 3321, MATH 1312, PHYS 2410, and PHYS 2411, or (3) instructor approval. Laboratory fee required.

4336 Introduction to Remote Sensing (2-3)
An introduction to acquisition, processing, and interpretation of remote sensing data acquired from both satellites and aircraft. Applications in earth and environmental sciences are stressed as is understanding how to obtain and employ the many types of data that are available. Topics include basic mapping concepts, how sensors work, the structure of remote sensing data and analysis, thermal and radar techniques, data processing, and classification schemes. Laboratory work is primarily computerized exercises. Corequisite: PHYS 1404 or PHYS 2411. Prerequisites: GEOL 1301 or GEOL 1303, and GEOL 1302 or GEOL 1304.

See the Graduate Studies Catalog for graduate programs and courses.

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Bell Hall, Room 100
Phone: (915) 747-5536
Fax: (915) 747-6807
E-mail: science@utep.edu

Mathematical Sciences

124 Bell Hall
Phone: (915) 747-5761
E-mail: mathdept@math.utep.edu

CHAIRPERSON: Joe A. Guthrie
PROFESSORS EMERITI: Delmar Lee Boyer, William Joseph Leahey
PROFESSORS: Guthrie, Kaigh, Moschopoulos, Nymann, Rojo, Schuster, Srinivasan
ASSOCIATE PROFESSOR EMERITUS: Charles Herman Gladman
ASSOCIATE PROFESSORS: Duval, Foged, Gray, Gregory, Hall, Khamsi, Knaust, Liguori, Narvarte, Sewell, Staniswalis, Wojciechowski
ASSISTANT PROFESSORS: Dennis, Lopp, Marcus, O'Neill, Thurman, Valdez-Sanchez

Baccalaureate Degrees

The department of Mathematical Sciences offers both a BA degree and a BS degree in Mathematics and the BS in Applied Mathematics. The BA in Mathematics allows for a concentration in Teacher Certification. The BS in Mathematics allows for concentrations in Actuarial Sciences, Secondary Education, and Statistics.

Registration for each course in Mathematical Sciences (with a MATH or STAT prefix) requires a minimum grade of "C" in all prerequisite courses.

BS in Mathematics

The requirement to obtain the BS in Mathematics consists of the general College of Science requirements plus the following specific requirements:

Major (37 semester hours including 24 semester hours of upper-division course work): MATH 1411, MATH 1312, MATH 2313, MATH 3326 or MATH 2326, MATH 3325, MATH 3341, MATH 4326, MATH 4341, STAT 3330, and 9 additional semester hours of upper-division courses in Mathematical Science.
Minor: A minimum of 18 semester hours including 6 semester hours of upper-division courses in any approved minor in the College of Business Administration, College of Science, or the Department of Computer Science. The minor discipline and specific courses must be approved by the departmental undergraduate advisor. Secondary certification requires a minor in secondary education in addition to one of the above minors. Students seeking secondary certification may also obtain the BA in mathematics, where only the minor required is the College of Liberal Arts Secondary Education minor. See the College of Liberal Arts for the general education requirements of that college.
Other: CS 1401 or CS 1420, PHYS 1120- PHYS 1121, and PHYS 2410- PHYS 2411 are required. If physics is the minor, the additional science requirement may be satisfied by BIOL 1305- BIOL 1107, BIOL 1306- BIOL 1108; or CHEM 1305- CHEM 1105, CHEM 1306- CHEM 1106; or GEOL 1301- GEOL 1101, GEOL 1302- GEOL 1102.
Additional Science: The required physics sequence above may be used to satisfy this requirement or toward a Physics minor, but not both.

Actuarial Sciences Concentration--This concentration requires the following changes:

Allowed Substitutions: MATH 3323 for MATH 4326; 6 semester hours in the College of Science (not in the major or minor) for the required physics sequence.
Required Replacements: MATH 2320 for MATH 4341; MATH 3320, MATH 4329, and STAT 4380 for the required 9 additional semester hours of upper-division courses in Mathematical Sciences.
Additional Requirements: CS 1420; and as electives, MATH 4199 (2 times), CS 1401 or CIS 2335, ECON 2303 and ECON 2304, COMM 1302; and two courses from ACCT 2301 or ACCT 3309, FIN 3310, FIN 4316, BLAW 3301, MKT 3300, MGMT 3303 or POM 3321, ECON 3302, ECON 3303, and ECON 3372.

Secondary Education Concentration--This concentration requires a second minor in Secondary Education. In addition:

Allowed Substitutions: MATH 3323 for MATH 4326; one of the courses MATH 3319, MATH 3327, MATH 3328 (not geometry), MATH 4325, or MATH 4329 for MATH 4341.
Required Replacements: MATH 3300, MATH 3328 (geometry), and STAT 4380 for the required 9 additional semester hours of upper-division

courses in Mathematical Sciences.
Additional Requirements: The first minor must be selected from biology, chemistry, computer science, geology, or physics. A minor in physics is strongly recommended, in which case the required physics sequence (College of Science additional science requirement) must be replaced by one of the following: BIOL 1305- BIOL 1107 and either BOT 2410 or ZOOL 2406; CHEM 1305- CHEM 1105 and CHEM 1306- CHEM 1106; or GEOL 1301- GEOL 1101 and GEOL 1302- GEOL 1102.

Statistics Concentration--This concentration requires the following changes:

Allowed Substitutions: MATH 3323 for MATH 4326; Computer Science courses may be used to fulfill the 9 additional hours of upper-division Mathematical Sciences requirement.
Required Replacements: MATH 4329, STAT 3381, and STAT 4380 for MATH 2326 or MATH 3326, MATH 3325, and MATH 4341.

BS in Applied Mathematics

The requirement to obtain the BS in Applied Mathematics consists of the general College of Science requirements plus the following specific requirements:

Major (40 semester hours including 24 semester hours of upper-division course work): MATH 1411, MATH 1312, MATH 2300 or MATH 2320, MATH 2313, MATH 2326 or MATH 3326, MATH 3323 or MATH 4326, MATH 3335, MATH 4329, MATH 4336, MATH 4399 (as a senior project), STAT 3330 and STAT 4380, and 3 additional semester hours of upper-division courses in Mathematical Sciences.
Minor: A minimum of 18 semester hours including 6 semester hours of upper-division courses in any approved minor in the College of Business Administration, College of Science, or the Department of Computer Science. The minor discipline and specific courses must be approved by the departmental undergraduate advisor.
Other: CS 1401 or CS 1420, PHYS 1120- PHYS 1121, and PHYS 2410- PHYS 2411 are required. If physics is the minor, the additional science requirement may be satisfied by BIOL 1305- BIOL 1107, BIOL 1306- BIOL 1108; or CHEM 1305- CHEM 1105, CHEM 1306- CHEM 1106; or GEOL 1301- GEOL 1101, GEOL 1302- GEOL 1102.

BA in Mathematics

See the College of Liberal Arts section of this catalog for the general requirements for the BA degree. The specific courses required for this major are (28 semester hours including 18 semester hours of upper-division course work): MATH 1411, MATH 1312, MATH 2313, MATH 3323 or MATH 4326, MATH 3325, MATH 3341, and 9 additional semester hours of upper-division courses in Mathematical Science. A BA with Secondary Teaching Certification is also available through the College of Liberal Arts. A minor in this College requires 9 semester hours of upper-division course work.

Minor in Mathematics

A minor in mathematics requires MATH 1411, MATH 1312, and an additional minimum of 4 courses, at least 2 (3 for the BA) of which must be upper-division courses. Approved courses include MATH 2300, MATH 2313, MATH 2320, MATH 2326 or MATH 3326, MATH 3319, MATH 3320, MATH 3323 or MATH 4326, MATH 3325, MATH 3327, MATH 3328, MATH 3335, MATH 3341, MATH 4325, MATH 4329, MATH 4336, MATH 4341, STAT 3330, STAT 3381, and STAT 4380.

Minor in Statistics

Students may minor in Statistics by taking 18 hours (six advanced) as follows: CS 1420 or equivalent, MATH 2301 or MATH 1411, plus 12 hours from STAT 2380, STAT 2381, STAT 3330, STAT 3381, STAT 4380, and MATH 3320. Students who plan to pursue graduate studies in statistics-related areas are urged to take STAT 4380.

Advising

All undergraduate mathematics majors are required to consult with and have their enrollment approved by their undergraduate advisor before every enrollment.

Placement

Students who intend to register in MATH 1320, MATH 1508, or MATH 1411 must present an official document at registration showing that they have either an adequate placement examination score or received a grade of "C" or better in the prerequisite course.

GPA

Mathematics majors must maintain a 2.0 GPA in all MATH and STAT courses

(see the Standards of Academic Performance section of this catalog).

Prerequisites

All mathematics (MATH) or statistics (STAT) courses that have MATH or STAT prerequisites require a grade of "C" or better in the prerequisite course.

Mathematics (MATH)

0310 Introductory Algebra (3-0) (Non-credit course)
The course begins with a review of signed numbers, rational numbers, and exponents. Major topics include variables, linear equations and inequalities, word problems, and operations with polynomials. This course is designed as an introduction to MATH 0311. Credit hours received for MATH 0310 may count toward removal of provisional status, but may not be used to satisfy any institutional degree requirements. Prerequisite: Placement by examination.

0311 Intermediate Algebra (3-0) (Non-credit course)
The course begins with a review of polynomials. Major topics include rational expressions and equations, radical expressions, rational exponents, complex numbers, quadratic equations, graphing lines, and geometry. The course is designed as an introduction to MATH 1508 or MATH 1320. Credit hours received for MATH 0311 may count toward removal of provisional status, but may not be used to satisfy any institutional degree requirements. Prerequisite: MATH 0310 or placement by examination.

1312 Calculus II (3-0)
(Common Course Number MATH 2314) Continuation of MATH 1411. Topics include special methods of integration and applications; infinite series. Prerequisite: MATH 1411.

1320 Mathematics for Social Sciences I (3-0)
(Common Course Number MATH 1324) Topics of college algebra and geometry including the algebra of sets; linear, quadratic, exponential, and logarithmic functions; systems of linear equations and inequalities; matrix algebra; probability and the mathematics of finance. Prerequisites: An adequate score on a placement examination or MATH 0311 or MATH 1305.

1411 Calculus I (4-0)
(Common Course Number MATH 2413) Topics include limits, continuity, differentiation, and integration of functions of a single variable. Prerequisites: Four years of high school mathematics including trigonometry and analytic geometry and an adequate score on a placement examination or MATH 1410 or MATH 1508.

1508 Precalculus (4-0)
(Common Course Number MATH 2512) Topics include the algebra of real functions, graphs of functions, analytic geometry of first and second degree curves, rational functions, exponential and logarithmic functions, and polynomial equations, sequences, series, and mathematical induction. Prerequisite: An adequate score on a placement examination or MATH 0311.

2300 Discrete Mathematics (3-0)
(Common Course Number MATH 2305) Topics in discrete mathematics including induction, recursion and recurrence relations, sets and relations, combinatorics, and graph theory. Prerequisite: MATH 1411.

2301 Mathematics for Social Sciences II (3-0)
(Common Course Number MATH 1325) Topics include linear programming and an introduction to differential and integral calculus with applications to business and the social sciences. Prerequisite: MATH 1320, MATH 1409, or MATH 1508.

2303 Properties of the Real Numbers I (3-0)
A study of the arithmetic structure of the real numbers from an advanced point of view. Relations with concepts from set theory, groups, rings, and fields will be included. Prerequisite: MATH 1409, MATH 1508, or MATH 1320, or an acceptable score on a placement examination.

2313 Calculus III (3-0)
(Common Course Number MATH 2315) Continuation of MATH 1312. Topics include solid analytic geometry, partial differentiation, and multiple integrals. Prerequisite: MATH 1312.

2320 Mathematics of Interest (3-0)
Mathematical foundations - a calculus based development of the theory of interest with applications including annuities, bonds, depreciation, sinking funds, amortization schedules, insurance and yield rates. Prerequisite: MATH 2301 or MATH 1312.

2326 Differential Equations (3-0)
(Common Course Number MATH 2320) An analytical, graphical, and numerical study of first order equations and system of equations, modeling, bifurcations, linearization, and Laplace transforms. Prerequisite: MATH 1312.

General Prerequisite: All required lower-division courses in the major should be completed with a grade of "C" or better in order to enroll in upper-division courses in the major. Some upper-division courses may be applied toward graduate degrees; consult the Graduate Studies Catalog for the listing of these courses.

3300 History of Mathematics (3-0)
One of two periods will be addressed: (1) Pre-17th century history: Mathematical contributions for various cultures and eras from Babylonia to 16th century Europe are reviewed with special focus on Greek mathematics. (2) Early modern history: A historical account of the genesis of trigonometry, logarithms, analytic geometry, calculus, and the study of functions, with an emphasis on the period of the European scientific revolution (1600-1750). Original works by noted mathematicians will be examined in order to understand the evolution of our current mathematics curriculum. May be repeated for credit when the periods differ. Prerequisite: MATH 1411 or instructor approval.

3303 Properties of the Real Numbers II (3-0)
Additional topics in the structure of the real numbers. Basic number theory including divisibility and congruences. Topics in finite mathematics. Prerequisite: MATH 1410 or MATH 1508.

3304 Fundamentals of Geometry from an Advanced Standpoint (3-0)
An axiomatic treatment of Euclidean geometry including some historical perspectives. Informal treatment of other geometries such as distance and hyperbolic geometry. Prerequisite: MATH 1410 or MATH 1508.

3319 Elementary Number Theory (3-0)
An introduction to some of the classical topics in number theory including divisibility, congruences, and quadratic reciprocity. Diophantine equations and the distribution of primes. Prerequisite: MATH 1312.

3320 Actuarial Mathematics (3-0)
Individual and collective risk models. Survival distributions and life contingency tables. Models for life insurance and multiple life functions. Prerequisite: STAT 3330.

3323 Matrix Algebra (3-0)
Systems of linear equations, matrices, determinants, eigenvalues and eigenvectors, diagonalization, vector spaces, and linear transformations. Prerequisite: MATH 1312.

3325 Principles of Mathematics (3-0)
Logic and proofs, elements of set theory, relations and functions: application of these ideas. Cardinality, groups and their quotients, and the field of real numbers. Prerequisite: MATH 1312.

3327 Applied Algebra (3-0)
Study of problems from one of the following subjects: Automata Theory; Formal Languages; Information Theory; Theory of Algorithms; Artificial Intelligence. This course deals with the theoretical components of computer science and is also of interest to students of structural/ theoretical features in such disciplines as biology, linguistics, social science, and in learning theory. May be repeated for credit if subjects differ. Prerequisite: MATH 1312.

3328 Foundations of Mathematics (3-0)
Study of principles of mathematical thinking and of common objects of mathematical thought. Emphasis on one of these aspects: Logic; Set Theory; Geometry; Topology. May be repeated for credit if subjects differ. Prerequisite: MATH 1312.

3335 Applied Analysis I (3-0)
Line and surface integrals, change of variable in multiple integrals, vector analysis, and an introduction to complex variables. Prerequisite: MATH 2313.

3341 Introduction to Analysis (3-0)
A theoretical study of the foundations of the calculus of functions of one variable. Includes the real number system, convergence, continuity, differentiability, and elementary integration theory. Prerequisite: MATH 1312.

4199 Individual Studies in Mathematics (0-0-1)

4399 Individual Studies in Mathematics (0-0-3)
Studies of topics not included in or going beyond the regular course offerings. May be repeated for credit. Prerequisite: Department approval.

4325 Modern Algebra (3-0)
Groups, rings, integral domains, and fields. Prerequisite: MATH 3325.

4326 Linear Algebra (3-0)
Vector spaces, linear transformations and matrix representations, canonical forms, eigenvalues, invariant subspaces, orthogonal and unitary transformations, and bilinear and quadratic forms. Prerequisite: MATH 3325.

4329 Numerical Analysis (3-0)
The course covers numerical algorithms for approximation of functions, quadrature, solution of ordinary differential equations, solution of nonlinear equations, solution of linear systems of equations, computing eigenvalues and eigenvectors. Many computer applications will be required. Prerequisites: MATH 3323 and a working knowledge of a high level programming language.

4336 Applied Analysis II (3-0)
Series solutions of differential equations. Fourier series and Fourier integrals. Bessel's equation and Bessel functions. Legendre's equation and Legendre polynomials, the Sturm-Liouville problem and eigenfunction expansions, and an introduction to partial differential equations. Prerequisite: MATH 2326 or MATH 3326.

4341 Real Analysis (3-0)
Convergence of series of constant terms; convergence of sequences and series of functions; and analysis of functions of several variables to include the differential approximation theorem, the inverse function theorem, and the implicit function theorem. Prerequisite: MATH 3341.

4370 Topics Seminar (3-0)
Organized lectures in mathematics on topics not represented among the other course offerings. Prerequisite: Junior standing; addition prerequisites may be announced as required by the topics. May be repeated for credit.

Statistics (STAT)

1380 Basics of Descriptive and Inferential Statistics (3-0)
A course in statistical literacy. Emphasis will be on standard descriptive measures of location, spread, and association. Regression, probability and sampling, and binomial distribution. Interpretation of data which occur in daily life (polls, weather forecasting, surveys, quality control, etc.) will be stressed. Prerequisite: MATH 1320, MATH 1409, or MATH 1508, or equivalent.

2182 Computing Laboratory for Statistics 2380 (0-2)
Practical exercises in the handling of statistical data and experimental sampling as related to the course work in STAT 2380. Includes an introduction to data processing. Corequisite: STAT 2380.

2380 Statistical Methods I (3-0)
An elementary introduction to statistical concepts and methods. Descriptive statistics, elementary probability, binomial distribution, normal distribution, estimation and hypothesis testing for one- and two-sample problems, simple linear regression, and correlation. Corequisite: STAT 2182. Prerequisite: MATH 1320, MATH 1409, or MATH 1508, or equivalent.

2381 Statistical Methods II (3-0)
A continuation of Statistics 2380 with treatment of more advanced statistical methods. Chi-square goodness-of-fit and contingency table analysis, analysis of variance and multiple comparisons, multiple linear regression and correlation and analysis. Prerequisites: STAT 2380- STAT 2182. General Prerequisite: All required lower-division courses in the major should be completed with a grade of "C" or better in order to enroll in upper-division courses in the major. Some upper-division courses may be applied toward graduate degrees; consult the Graduate Studies Catalog for the listing of these courses.

3330 Probability (3-0)
Theory and applications of probability models. Sample space, combinatorics, conditional probability, random variables, discrete and continuous probability distributions, expectation, moment generating functions, law of large numbers, and central limit theorem. Prerequisite: MATH 2313.

3381 Nonparametric Statistical Methods (3-0)
Distribution-free procedures; Nonparametric one- and two-sample tests for location and scale; nonparametric analysis of variance; nonparametric correlation. Prerequisite: STAT 2380 or STAT 4380.

4380 Statistics I (3-0)
A calculus-based development of statistical concepts and methods. Distribution theory, point and interval estimation and hypothesis testing in parametric statistical models, chi-square goodness-of-fit and contingency table analysis, simple linear regression analysis, and introduction to analysis of variance. Prerequisite: STAT 3330.

See the Graduate Studies Catalog for graduate programs and courses.

COLLEGE OF SCIENCE

- College Information
- Biological Sciences
- Chemistry
- Geological Sciences
- Mathematical Sciences
- Physics

Dr. Thomas E. Brady, Dean
Dr. Larry P. Jones, Associate Dean
Dr. Pablo Arenaz, Associate Dean for Entering Students
Dr. Jorge A. Lopez, Assistant Dean

Bell Hall, Room 100
Phone: (915) 747-5536
Fax: (915) 747-6807
E-mail: science@utep.edu

Physics

210 Physical Science
Phone: (915) 747-5715
E-mail: physics@utep.edu

CHAIRPERSON: Ramon E. Lopez
PROFESSORS EMERITI: Thomas G. Barnes, Max C. Bolen, S. John Brient, Rufus E. Bruce, C. Sharp Cook, Juan O. Lawson
PROFESSORS: Craig, Dean, R.E. Lopez
ASSOCIATE PROFESSORS EMERITI: Michael H. Blue, Clarence H. Cooper
ASSOCIATE PROFESSORS: J.A. Lopez, Ravelo, Russell, Wang
ASSISTANT PROFESSORS: Cole, Drucker, Fitzgerald, Larabee, Slusher, Smith

Baccalaureate Degrees

The Department offers both a BS and a BA degree in Physics. The BS includes the opportunity to obtain concentrations in Applied Physics, Health Physics, or Secondary Teaching Certification.

BS in Physics

The requirements to obtain the BS in Physics consist of the general College of Science requirements plus the following specific requirements:

> **Major** (43 semester hours including 33 semester hours of upper-division course work): PHYS 1120, PHYS 1121, PHYS 2410, PHYS 2411, PHYS 3323, PHYS 3325, PHYS 3243 (taken 3 times), PHYS 3331, PHYS 3351, PHYS 3352, PHYS 4341, PHYS 4342, PHYS 4355, and PHYS 4356 or PHYS 4357
> **Minor**: Mathematics is the required minor except for the Secondary Education Concentration, where the minor is secondary education. The mathematics minor consists of MATH 1411, MATH 1312, MATH 2313, MATH 2326 or MATH 3326, MATH 3335, and 2 courses selected from MATH 3323, MATH 4329, and MATH 4336.
> **Additional Science**: CHEM 1305- CHEM 1105 and CHEM 1306- CHEM 1106 are required.
> **Other**: CS 1401 or CS 1420 is required.

The following concentrations require approval of course substitutions. The approval is to be obtained from the departmental Concentration Committee.

Applied Physics Concentration

Nine semester hours of approved upper-division courses may be substituted for PHYS 3352, PHYS 4342, and PHYS 4356 or PHYS 4357 in this concentration. This concentration must be requested by the student in a timely fashion and accompanied by a list of substituted courses submitted to the departmental Concentration Committee for approval.

Health Physics Concentration

PHYS 4357 is required. In addition, PHYS 4370, PHYS 4371 and GEOL 4384 must be substituted for PHYS 3323, PHYS 3352, and PHYS 4342. An approved upper-division course in biology or chemistry is to be substituted for 1 of the 2 upper-division courses in the mathematics minor. Students selecting this option are urged to take relevant elective courses in biology and chemistry.

Secondary Education Concentration

This concentration requires the following:

> **Major** (a minimum of 36 semester hours including 21 semester hours of upper-division course work): ASTR 1307- ASTR 1108, ASTR 1308, PHYS 1120- PHYS 1121, PHYS 2410- PHYS 2411, PHYS 3325, PHYS 3243 (taken 3 times), plus a minimum of 12 semester hours of approved upper-division course work in physics.
> **Minor**: Secondary education is the required minor.
> **Other**: Also required are MATH 1411, MATH 1312, MATH 2313, MATH 2326 or MATH 3326, and MATH 3335; and CHEM 1305- CHEM 1105 and CHEM 1306- CHEM 1106. The mathematics courses satisfy the 12-semester hour supporting field and the chemistry courses satisfy the additional science requirements.

BA in Physics

See the College of Liberal Arts section of this catalog for the general

requirements for the BA degree. The specific courses required for this major are (28 semester hours including 18 semester hours of upper-division course work) PHYS 1120, PHYS 1121, PHYS 2410, PHYS 2411, PHYS 3325, PHYS 3243 (taken 3 times), PHYS 3351, PHYS 4341, and PHYS 4355. Mathematics is the required minor. (A minor in the College of Liberal Arts requires 9 semester hours of upper-division course work.)

Minor in Physics

A minor in physics requires PHYS 1120- PHYS 1121, PHYS 2410, PHYS 2411, PHYS 3325, and an additional 5 (6 for the BA) semester hours selected from PHYS 3323, PHYS 3243, PHYS 3331, PHYS 3351, PHYS 4341, PHYS 4342, or PHYS 4355.

Physics Honors Program

The Physics Honors Program is designed to recognize and enhance the development of talented physics students. The program consists of departmental awards for outstanding achievement and special courses, seminars, and research laboratories for honors students. In addition, Physics Honors Students are also eligible to earn the BS degree with Departmental Honors and to participate in the five-year BS/MS Program.

Incoming freshmen or students with fewer than 30 semester hours of credit are eligible to be Physics Honors Students if they graduated in the top 20% of their high school graduating class and their combined SAT score is 1000 or more with at least 600 on the math portion of the SAT (or equivalent for other examinations). Students with 30 or more semester hours credit must have a minimum 3.2 GPA (with at least 3.2 GPA in all physics and mathematics courses) to be eligible.

BS Degree with Physics Department Honors

Physics Honors students who satisfactorily complete an undergraduate Honors Thesis based on research in Physics are eligible to receive the BS degree with Departmental Honors in Physics. Usually the research will be carried out under the direction of a member of the faculty of the Department of Physics. The satisfactory completion of the Honors Thesis will be judged by the Thesis research director in conjunction with the Physics Department's Honors Committee. The candidate for Department Honors must request approval of candidacy prior to the beginning of the senior year. Upon acceptance by the department, the candidate shall enroll in PHYS 4177, PHYS 4277, and PHYS 4377 for successive semesters and must have accumulated a total of 6 semester hours of PHYS 1477, PHYS 2477, and PHYS 3477 credit on completion of the Honors Thesis Program.

Five Year BS-MS Program

The Department of Physics provides an opportunity for qualified students to participate in a five-year bachelor/master of science degree program. The program is limited to students who maintain at least a 3.0 GPA. Freshmen honors students should consult with the departmental undergraduate advisor about the details of this program including course selection and admission to the Graduate School.

Astronomy (ASTR)

1107 Astronomy Laboratory I (0-2)
(Common Course Number PHYS 1111) Basic laboratory exercises in solar system astronomy. An introduction to the concepts and methods employed by astronomers in studying the solar system. Prerequisites: ASTR 1307 and MATH 0310 or placement into MATH 0311 or higher level mathematics course. ASTR 1307 may be taken concurrently with ASTR 1107. Fees required.

1108 Astronomy Laboratory II (0-2)
(Common Course Number PHYS 1112) Basic laboratory exercises in stellar and galactic astronomy. Prerequisites: ASTR 1107 and ASTR 1308. ASTR 1308 may be taken concurrently with ASTR 1108. Fees required.

1307 Elementary Astronomy of the Solar System (3-0)
(Common Course Number PHYS 1311) A survey of the solar system. Topics include astronomical history and instruments, the planets and their moons, comets, and meteors. May not be counted toward a major or minor in physics. Students seeking four credit hours are encouraged to take ASTR 1107 concurrently.

1308 Elementary Astronomy of Stars and Galaxies (3-0)
(Common Course Number PHYS 1312) Topics include stellar properties, galaxies, and cosmology. May not be counted toward a major or minor in physics. Students seeking four credit hours are encouraged to take ASTR 1108 concurrently. Prerequisite: ASTR 1307.

Physical Science (PSCI)

1302 Application of Physical Science in Society (3-0)
The applications of physical science to societal problems with special emphasis on energy, energy resources, and energy utilization. May not be counted toward a major or minor in physics.

2303 Physical Science I (2-2)
(Common Course Number PHYS 1315) An introduction to the physical sciences. Selected topics from chemistry and physics. Lectures are coordinated with the laboratory experiences. Applications of elementary algebra are integrated into the course. Prerequisite: MATH 1320, MATH 1409, or MATH 1508. MATH 1320, MATH 1409, or MATH 1508 may be taken concurrently with PHYS 2303. Laboratory fee required.

3304 Physical Science II (2-2)
A continuation of PSCI 2303, treating more advanced topics. Elementary statistical concepts are applied to aid the understanding of uncertainty in measurement. Prerequisites: PSCI 2303, MATH 1320, and (1) MATH 1380, (2) PSYC 1303, (3) QMB 2301, or (4) SOCI 2312. Laboratory fee required.

Physics (PHYS)

1120 Physics Laboratory I (0-3)
(Common Course Number PHYS 2125) Experiments in mechanics and thermal physics with the gathering and analysis of data aided by computers. Prerequisite: MATH 1409 or MATH 1508, with a grade of "C" or better. MATH 1409 or MATH 1508 may be taken concurrently with PHYS 1120. Fees required.

1121 Physics Laboratory II (0-3)
(Common Course Number PHYS 2126) Experiments in electric circuit and optics. The emphasis is on understanding physical concepts through discovery - -observation and experimentation. Prerequisites: PHYS 1120; MATH 1410 or MATH 1508 with a grade of "C" or better. MATH 1410 or MATH 1508 may be taken concurrently with PHYS 1121. Fees required

1403 General Physics I (3-2)
(Common Course Number PHYS 1401) A non-calculus treatment of mechanics and heat. Laboratory experience is an essential component of this course. May not be counted toward a major or minor in physics. Prerequisite: MATH 1409, MATH 1508, or MATH 1320. Fees required.

1404 General Physics II (3-2)
(Common Course Number PHYS 1402) A continuation of PHYS 1403, treating topics in electricity, magnetism, sound, and light. May not be counted toward a major or minor in physics. Prerequisite: PHYS 1403. Fees required.

2410 Mechanics and Thermal Physics (4-1)
(Common Course Number PHYS 2425) Dynamics of particles and rigid bodies using vectors and calculus, conservation of energy and momentum, kinetic theory, and thermal physics. Prerequisite: MATH 1411. MATH 1411 may be taken concurrently with PHYS 2410.

2411 Fields and Waves (4-1)
(Common Course Number PHYS 2426) Electric field and potential; current and magnetism; time varying fields and electromagnetic waves, waves in elastic media; interference and theory of waves. Prerequisites: PHYS 2410 and MATH 1312. MATH 1312 may be taken concurrently with PHYS 2411.

General Prerequisite: All required lower-division courses in the major should be completed with a grade of "C" or better in order to enroll in upper-division courses in the major. Some upper-division courses may be applied toward graduate degrees; consult the Graduate Studies Catalog for the listing of these courses.

3243 Advanced Laboratory Practice (0-6)
Topics in and practices of experimental physics. May be repeated three times for credit. Prerequisite: PHYS 2411. Fees required.

3323 Physical Optics (3-0)
Wave propagation, interference, diffraction, absorption, scattering, and polarization. The theory and operation of lasers and optical resonant cavities are introduced. Prerequisites: PHYS 2411, and MATH 2326 or MATH 3326.

3325 Survey of Modern Physics (3-0)
Survey of special relativity theory and quantum physics applied to atoms, molecules, nuclei, and the solid state. Prerequisite: PHYS 2411.

3331 Thermal Physics (3-0)
Introduction to statistical mechanics and thermodynamics. Prerequisites: PHYS 2411 and MATH 2313.

3351 Analytical Mechanics I (3-0)
Newtonian mechanics of particles and rigid bodies. Prerequisites: PHYS 2411, and MATH 2326 or MATH 3326. MATH 3326 may be taken concurrently with PHYS 3351.

3352 Analytical Mechanics II (3-0)
Topics in mechanics such as mechanics of deformable bodies and application of Lagrangian and Hamiltonian formulations. Prerequisite: PHYS 3351.

3359 Astrophysics (3-0)
The physical basis for stellar radiation, stellar motions, binary and variable stars, stellar interiors, and the formation of energy in stars, interstellar matter, galaxies, and cosmology. Prerequisites: PHYS 2411, and MATH 2326 or MATH 3326.

4177 Undergraduate Research Problems in Physics (0-0-1)

4277 Undergraduate Research Problems in Physics (0-0-2)

4377 Undergraduate Research Problems in Physics (0-0-3)
Supervised individual research. May be repeated for credit. Prerequisites: Senior standing with a 3.2 grade point average or better and permission of the research advisor.

4328 Theoretical Geophysics (3-0)
A study of the theory of potential and thermodynamics of the earth and hydrodynamics. Emphasis is on the solving of various problems associated with the natural force fields of the earth. Prerequisites: PHYS 2411, and MATH 2326 or MATH 3326.

4341 Electromagnetics I (3-0)
Electromagnetic theory via Maxwell's equations. Prerequisites: PHYS 2411 and MATH 3335.

4342 Electromagnetics II (3-0)
Advanced topics in electrodynamic theory such as electrodynamic waves and radiation and relativistic electrodynamics. Prerequisite: PHYS 4341.

4348 Fundamentals of Acoustics (3-0)
The principles underlying the generation, transmission, and reception of acoustic waves. Mathematical analysis of the various types of vibration of solid bodies. Propagation of plane and spherical sound waves through fluids, transmission and absorption phenomena, resonators and filters. Prerequisites: PHYS 2411, and MATH 2326 or MATH 3326.

4355 Introductory Quantum Mechanics (3-0)
Wave mechanics fundamentals, one-dimensional eigenvalue problems, angular momentum and spin, the hydrogen atom, and quantum statistics. Prerequisites: PHYS 3325, and MATH 2326 or MATH 3326.

4356 Atoms, Molecules, and Solids (3-0)
Multielectron atoms and molecules. Structure of solids, band theory of conduction, and other quantum properties of solids. Prerequisite: PHYS 4355.

4357 Relativity, Nuclei and Particles (3-0)
Special relativity, nuclear models, nuclear decay and reactions, and an introduction to elementary particles. Prerequisite: PHYS 4355.

4370 Health Physics I (3-0)
The physics of ionizing radiation; charged particle, neutron, and high-energy photon interactions; natural and man-made sources of radioactivity, their production, and detection. Prerequisites: PHYS 3325, and MATH 2326 or MATH 3326.

4371 Health Physics II (2-3)
Topics include radiation quantities and units, detection electronics, statistics, detectors, and dosimeters. Also includes topics in radiation dose evaluation, radiation biophysics, and laboratory experiences in electromagnetic and particulate radiation detection and dosimetric methods. Prerequisites: PHYS 4370 and two semesters of PHYS 3243. Laboratory fee required.

See the Graduate Studies Catalog for graduate programs and courses.