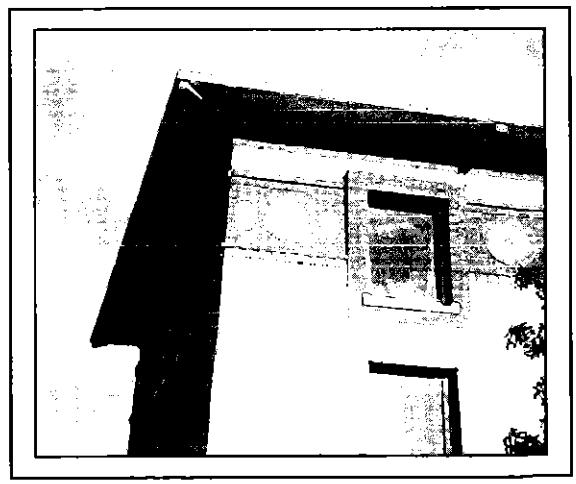
THE UNIVERSITY OF TEXAS AT EL PASO

GRADUATE STUDIES

1996-1998



UTEP

The University of Texas at El Paso

Graduate Studies Catalog 1996-1998

February, 1996

Published by the University of Texas at El Paso, the Office of the Vice President for Academic Affairs, Graduate Student Services, and Office of the Registrar, El Paso, Texas 79968-0599

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General Information

Univ rsity History

The University of Texas at El Paso, known as UTEP, is the second oldest academic component of the University of Texas System. It was founded by the Texas Legislature in 1913 as the State School of Mines and Metallurgy, a name that reflected the scope of education offered at the early West Texas school. The first campus, located on land that is now part of the Fort Bliss Army post, was destroyed by fire a few years after the college's inception. The school moved in 1916 to the present campus on the western foothills of the Franklin Mountains, just a stone's throw from the Rio Grande.

In the move to the present 366-acre site, UTEP acquired what has become one of its most distinctive non-academic trademarks - the Bhutanese-style architecture that makes the campus's buildings look more like exotic Oriental castles than stacks of classrooms and offices. The motif, characterized by thick, sloped outer walls topped with elaborate brickwork, was inspired by Kathleen Worrell, the wife of the college's first dean, and designed by noted El Paso architect Henry Trost. Mrs. Worrell, an avid arm-chair traveler, had seen photographs of Bhutanese buildings in the Himalayan Mountains and decided that similar architecture would complement the rugged desert terrain at the college's new site. Architects have continued the theme through nearly 80 years of campus expansion.

After the move to the new campus, the school grew steadily. In 1919, the institution became a branch of the University of Texas System and was renamed the Texas College of Mines and Metallurgy. In 1927, liberal arts courses were added to the curriculum. The first master of arts degree program was established in 1940. By 1949 enrollment approached 2,400, and the institution was renamed Texas Western College. Texas Western College became the University of Texas at El Paso in 1967 and boasted a student population of more than 9,000.

Since then, the size of the student body has nearly doubled, reaching an all-time high of 17,213 in 1992. UTEP has continued to grow both physically and academically to meet the needs of an increasingly industrialized West Texas region. The UTEP campus now consists of 76 buildings, including the 52,000-seat Sun Bowl Stadium, and the 12,222-seat Special Events Center, a modern fine arts complex with galleries and recital halls and a museum of natural and cultural history. A new Undergraduate Learning Center will feature state of the art learning technology.

As UTEP moves into the 21st century, its innovative curriculum and sensitivity to the needs of El Paso's predominantly Hispanic community is earning the University a reputation as a national research center of excellence for the education of minorities and for being a national model for urban higher education.

VISION

The University of Texas at El Paso (UTEP) 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.

MISSION

The University of Texas at El Paso (UTEP) 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 multi-cultural characteristics of this region, the University provides its students and faculty with distinctive opportunities for learning, teaching, research, artistic endeavors, cultural experiences, and service.

GOALS: 1995-1999

GOAL 1 - LEARNING AND TEACHING:

To prepare UTEP students to meet lifelong intellectual, ethical and career challenges and to be the leaders of the 21st Century.

Student Achievement: To graduate students who have a command of communicative, mathematical and computer skills; core knowledge in the natural and social sciences, humanities and arts; knowledge, attitudes, and skills of their academic major or profession; and additional knowledge and skills to be gained from capitalizing on UTEP's special setting.

Curriculum: To maintain a core curriculum for all undergraduate students and major/professional 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: To provide a wide array of quality academic programs appropriate to a comprehensive university and the educational requirements of El Paso's binational metropolitan area, and to develop new graduate degree programs based on needs of and opportunities within our setting and institutional strengths.

Faculty: To recruit, orient, support, and retain a highly qualified, diverse faculty which is dedicated to teaching and which uses effective instructional practices, such as directed practical experiences and technological innovations, for the enhancement of student learning.

Student Services: To provide comprehensive programs and services which strengthen UTEP students' academic achievement and develop their leadership skills.

Pre-College Preparation of Students: To 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 in the University, and to support collaborative efforts to improve pre-college education.

Student Recruitment: To inform and assist qualified potential students in seeking admission to the University in order to fulfill their aspirations for higher education.

GOAL 2 - RESEARCH, SCHOLARSHIP AND ARTISTIC PRODUCTION:

To create, interpret, evaluate, apply, and disseminate knowledge; to encourage the addition of perspectives based on UTEP's geographic and social setting; and to contribute to the formation of a broader intellectual and artistic foundation for the 21st Century.

Generation of Knowledge: To advance knowledge through research, scholarship, and artistic production.

Application of Knowledge: To develop research, scholarship, and artistic activities which apply UTEP's expertise and resources to the search for solutions to regional, national, and international problems

Integration with Teaching: To expand the linkages between University instruction with research, scholarship, and artistic activities whenever appropriate and to expand opportunities for both graduate and undergraduate students to participate in these endeavors.

Faculty: To recruit, orient, support, and retain a highly qualified, diverse faculty dedicated to the advancement, dissemination and application of knowledge.

GOAL 3 - PUBLIC SERVICE:

To 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: To encourage lifelong learning and to provide educational courses and activities in response to local and regional needs.

Preparation of Professionals in Critical Areas: To educate and prepare for licensure and certification critically needed professionals, such as teachers and providers of health care and human services.

Economic Development Analysis and Technical Assistance: To provide needs assessment services, data collection and analyses, training, and technical assistance supportive of regional economic development.

Culture: To provide cultural activities consistent with the goals of the University and to work collaboratively with other groups supportive of regional cultural activities.

Recreation: To provide recreational activities consistent with the goals of the University and to work collaboratively with other groups in the support of regional recreational activities.

Athletics: To provide intercollegiate athletic activities consistent with the goals of the University and to work collaboratively with other groups in the support of regional athletic activities.

GOAL 4 - ADMINISTRATION:

To 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: To contribute to the achievement of UTEP's mission and goals through the University's planning, institutional research and evaluation system.

Financial and Material Resources: To 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.

Information and Telecommunications Services: To expand and integrate state-of-the-art technology and telecommunications throughout the campus, emphasizing their application to instruction and student learning, and to improve information and telecommunication services for essential administrative functions (e.g., student and alumni records, purchasing, facilities management).

Staff: To hire, train, support, and retain well-qualified staff members who work to ensure the achievement of the University's mission and goals.

DEGREES AND PROGRAMS

UTEP's six undergraduate Colleges--Business Administration, Education, Engineering, Liberal Arts, Nursing and Health Sciences, and Science—comprise some 34 academic departments and offer more than 60 baccalaureate degrees. The Graduate School offers 60 master's degrees in disciplines from all six Colleges. Doctoral degrees are offered in Computer Engineering, Environmental Science and Engineering, Geological Sciences, Materials Science and Engineering, and Psychology; an Ed.D. degree is offered in Educational Leadership and Administration.

Expanding on 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. Using more than $20 million in grants from the National Science Foundation and other agencies, UTEP has concentrated in recent years on developing state-of-the-art science laboratories. Its reward was approval from the Texas Higher Education Coordinating Board in 1993 for a doctoral program in materials science and engineering. UTEP also offers the doctoral degree in environmental science and engineering.

UTEP also continues to develop its liberal arts and social sciences offerings in response to the needs of the bilingual and bicultural community in which the university is situated. Recent additions include a master of fine arts degree in creative writing in which students study and write in English, Spanish or both languages, a Ph.D. in Psychology, and an Ed.D. in educational leadership and administration.

STUDENT BODY

Students who attend UTEP come from a unique mix of social, cultural and economic backgrounds that closely mirrors the population of the El Paso community. Sixty-four percent of UTEP's students are Hispanic and 3 percent are African-American. Nearly 8 percent come from Mexico. Seventy-five percent of UTEP's students work either full-time or part-time while in school, and 62 percent are first-generation college students. Students represent 47 states and 67 countries.

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 404-679-4501) 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.

Board of Regents

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THOMAS O. HICKS, Vice-Chairman
MARTHA E. SMILEY, Vice-Chairman
ARTHUR H. DILLY, Executive Secretary

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DONALD L. EVANS, Midland
TOM LOEFFLER, San Antonio

Terms Expire February 1, 1999:
THOMAS O. HICKS, Dallas
LOWELL H. LEBERMANN, JR., Austin
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Terms Expire February 1, 1997:
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ELLEN CLARKE TEMPLE, Lufkin

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JAMES P. DUNCAN, 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

Administrative Officers

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

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

STEPHEN RITER, P.E., *Interim Vice President for Academic Affairs*, 1980
B.A., B.S.E.E., Rice University; M.S., Ph.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

JOHN R. BRISTOL, *Dean, The College of Science*, 1970
B.A., Cornell College; M.A., Ph.D., Kent State University

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

CHARLES J. FEY, *Dean of Students*, 1992
B.A., M.Ed, Pennsylvania State University; Ed.D., Texas A&M University

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

POSITION VACANT, *Dean, The College of Liberal Arts*

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

SYLVIA H. RODRIGUEZ, *Dean, Enrollment Services*, 1995
B.A., University of Houston; M.A., Texas Southern University

JULIE P. SANFORD, *Associate Vice President for Research and Graduate Studies*, 1988
B.S., M.A., Texas A&I Kingsville University; Ph.D., The University of Texas at Austin

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

THE GRADUATE SCHOOL

Since the awarding of the first master's degree in History in 1942, the graduate program has experienced significant growth. In 1967 a Graduate School was organized, and in 1974, the first doctoral-level degree program, the Doctor of Geological Sciences, was approved by the Coordinating Board of the Texas College and University System, with the first degree awarded in 1979. Today, the Graduate School offers Doctor of Philosophy degrees in Geological Sciences, Computer Engineering, Materials Science and Engineering, Psychology, Environmental Science and Engineering, and the Doctor of Education in Educational Leadership and Administration, and Master's degrees in over 60 areas.

The Graduate School is comprised of professors and scholars designated as Members of the Graduate Faculty and of students duly admitted to pursue their studies beyond the baccalaureate degree. The Graduate School faculty and administration award all post-baccalaureate degrees conferred by the University under authority delegated by the Board of Regents of The University of Texas System.

Graduate School Administration

JULIE P. SANFORD, *Associate Vice President for Research and Graduate Studies*
B.S., M.A., Texas A&I University, Ph.D., University of Texas at Austin

SUSAN JORDAN, *Director of Graduate Student Services*
B.F.A., Ohio Wesleyan University, M.Ed., Texas Tech University

The Graduate Council, 1995-1996

The Graduate Faculty of The University of Texas at El Paso exercises its legislative functions through a Graduate Assembly. The Graduate Assembly is the final faculty authority for recommending policies concerned with academic standards for admission and retention of students, for furthering the development of the graduate program, and other matters affecting graduate study. The Assembly accomplishes most of its responsibilities through its elected representatives to the Graduate Council. Graduate Council members for 1996 include:

ELIZABETH ANTHONY (1998)
Associate Professor of Geological Sciences
College of Science Representative

ROBERT BLEDSOE (1997)
Professor of English
Member at Large

ALAN DEAN (1998)
Professor of Physics
Member at Large (Secretary)

DIANE DOSER (1996)
Associate Professor of Geological Sciences
Member at Large

JUDITH GOGGIN (1997)
Professor of Psychology
Chair of Graduate Assembly

WILLIAM HERNDON (1997)
Professor of Chemistry
College of Science Representative

JAMES HOLCOMB (1998)
Associate Dean of College of Business
College of Business Representative

LARRY JOHNSON
Associate Professor of English
Chair of Faculty Senate

JOHN PEPER (1997)
Professor of Educational Leadership
College of Education Representative

MIGUEL PICORNELL (1997)
Associate Professor of Civil Engineering
College of Engineering Representative

JOAN MANLEY (1998)
Professor of Languages & Linguistics
College of Liberal Arts Representative

GARY MANN (1997)
Associate Professor of Accounting
College of Business Representative

AUDREE REYNOLDS (1998)
Associate Professor of Nursing
College of Nursing and Health Sciences Representative

S. FERNANDO RODRIGUEZ (1998)
Assistant Professor of Sociology & Anthropology
College of Liberal Arts Representative

JULIE P. SANFORD
Associate Vice President for Research and Graduate Studies
Ex-Officio Member

MILAGROS SEDA (1996)
Associate Professor of Teacher Education
College of Education Representative

MEHDI SHADARAM (1996)
Associate Professor of Electrical Engineering
College of Liberal Arts Representative

BRENDA SMITH (1997)
Associate Professor of Allied Health Sciences
College of Nursing and Health Sciences Representative

KATHLEEN STAUDT (1996)
Professor of Political Science
Member at Large

*Term expires on August 31 of the year indicated.

CALENDAR

Listed below is the tentative 1996-1998 Calendar for registration activities. For further information on specific dates, refer to each term's *Class Schedule*, or contact the Office of the Registrar at 747-5544 or 747-5550.

	Fall 1996	**Fall 1997**	**Fall 1998**
Telephone Registration (TTR)	June - July	June - July	June - July
Final application deadline for graduate students *	July 1	July 1	July 1
Late Registration and schedule adjustment prior to classes	August 19, 20	August 18, 19	Aug. 17, 18
Classes begin	August 21 (Wed)	August 20 (Wed)	Aug 19 (Wed)
Late Registration and schedule adjustment - continued	August 21 - 23, 26 - 28	August 20 - 22, 25 - 27	Aug. 19 - 21, 24 - 26
Last day of class	Dec. 9 (Mon)	Dec. 8 (Mon)	Dec. 7 (Mon)
Last day of Final Examinations	Dec. 17	Dec. 16	Dec. 15

	Spring 1997	**Spring 1998**
Telephone Registration (TTR)	Oct.-Nov. '96	Oct.-Nov.'97
Final application deadline for graduate students *	Nov. 1	Nov. 1
Late Registration and schedule adjustment prior to classes	Jan. 9, 10	Jan. 8, 9
Classes begin	Jan. 13 (Mon)	Jan 12 (Mon)
Late Registration and schedule adjustment - continued	Jan. 13 - 17	Jan. 12 - 16
Last day of class	May 5 (Mon)	May 4 (Mon)
Last day of Final Examinations	May 13	May 12

	Summer 1996	**Summer 1997**	**Summer 1998**
Telephone Registration (TTR)	March - April	March - April	March- April
Final application deadline for graduate students *	April 1	April 1	April 1
Late Registration and schedule adjustment prior to classes	May 30, 31	May 29, 30	May 28, 29
Classes begin	June 3 (Mon)	June 2 (Mon)	June 1 (Mon)
Late Registration and schedule adjustment - continued	June 3 - 4	June 2 - 5	June 1 - 4
Last day of class	July 24	July 23	July 22
Last day of Final Examinations	July 26	July 25	July 24

* Individual graduate programs may have earlier application deadlines or may accept applications only for specific semesters. Applicants should contact the departmental Graduate Advisor or the Graduate School.

ADMISSION AND ACADEMIC REGULATIONS

Admission into the Graduate School

The University of Texas at El Paso is pleased to offer the opportunity for admission to any individual who meets the requirements for admission to the Graduate School. Any applicant who has a baccalaureate degree or its equivalent is processed as a graduate student unless the applicant is working toward a second undergraduate degree. An individual should apply for admission into a graduate program or as a post-baccalaureate student. A graduate program applicant is interested in a master's or doctoral degree; a post-baccalaureate applicant is not interested in a degree program at the time of admission, but is interested in teacher certification or in taking courses for personal or educational enrichment.

ADMISSION INTO A GRADUATE PROGRAM

General Requirements: The following documents must be submitted to the Office of Graduate Student Services for consideration for admission into a graduate degree program:

1. Completed application for admission.
2. Application/processing fee ($15 US or permanent residents, $65 International applicants)
3. Proof of a baccalaureate degree from an accredited institution in the United States or of equivalent training at a foreign institution. Graduates of colleges or universities other than UTEP must provide one complete, official transcript and two copies on which the baccalaureate degree is posted. If a master's degree has been earned, the official transcript reflecting that degree must also be submitted. If several institutions were attended, one official transcript and two copies are needed from each school where junior/senior, and any graduate level work was completed.
4. Evidence of a satisfactory grade point average (GPA) in upper division (junior and senior level) work and in any graduate work already completed.
5. A satisfactory score on a standardized examination (GRE, GMAT, MAT), if required by the graduate program, and a score of 550 or higher on the Test of English as a Foreign Language (TOEFL) for international students when English is not the official or first language. The official test scores must be sent directly from the testing agency to the Office of Graduate Student Services; student copies are not acceptable.
6. Evidence of adequate subject preparation for the proposed graduate major.

The Graduate Studies Committee of the proposed graduate major will recommend acceptance, conditional acceptance, or rejection after all required documents have been received and reviewed by the Office of Graduate Student Services. The Graduate Student Services Office will notify the applicant of the final decision.

The Associate Vice President for Research and Graduate Studies reserves the right to examine any application and, at his or her own discretion regardless of other criteria, admit or reject the student.

GRADUATE ENTRANCE EXAMINATIONS: As part of their graduate admission requirements, students may be required to take one or more of the following tests:

Graduate Record Examination General Test: The General Test of the Graduate Record Examination (GRE) is designed to test preparation and aptitude for graduate study. Most degree programs require the GRE for admission. For unconditional acceptance, students are usually required to achieve a score of 500 on the verbal and 500 on the quantitative portions of the GRE. Some departments also review the score on the analytical portion of the GRE. Applicants with lower scores may be accepted if other prerequisites are met with distinction as determined by the departmental Graduate Studies Committee. The GRE is taken at the applicant's own expense either nationally or by individual computerized testing.

Graduate Management Admission Test: The Graduate Management Admissions Test (GMAT) is an aptitude test designed to measure certain mental abilities important in the study of management at the graduate level. Students seeking admission to the Master of Business Administration or Master of Accountancy programs are usually required to achieve a score of 450 or higher. The GMAT is taken at the applicant's own expense and is given four times a year, usually in October, January, March, and June.

Miller's Analogy Test: The Miller's Analogy Test (MAT) is designed to evaluate mental and reasoning abilities. Students are usually required to achieve a score of 50 or higher on the test. The MAT is taken at the applicant's own expense and is given at UTEP.

Test of English as a Foreign Language: The Test of English as a Foreign Language (TOEFL) is designed to measure proficiency in understanding the English language. Students from non-English speaking countries must score at least a 550 on the TOEFL.

ACADEMIC FRESH START *(Texas Education Code, Section 51.931)*: Texas residents may be eligible to apply this state statute, limiting the consideration of academic course credits to those completed within ten years of the semester in which the applicant seeks to enroll, for admission to an **undergraduate** degree program. An applicant who has earned a baccalaureate degree under this statute will be evaluated for admission into a subsequent **graduate** degree program only on the grade point average completed after enrollment under this section, along with any other criteria required.

CLASSIFICATION OF GRADUATE STUDENTS: An individual applying for admission into a graduate degree program will be placed into one of the following admission categories after recommendation by the committee on graduate studies and approval of the Graduate School:

Acceptance: An applicant will be accepted into a graduate program if all official documents have been submitted and meet the admission requirements of the Graduate School, if the applicant shows evidence of satisfactory subject preparation, and if the committee on graduate studies recommends acceptance without any conditions.

Conditional Acceptance: An applicant desiring to work toward a graduate degree in an area in which the undergraduate or graduate preparation is insufficient may be conditionally admitted into the graduate program with the understanding that specific coursework must be completed to make up the deficiencies noted by the graduate advisor. Such deficiency work will be in addition to the regular degree requirements.

An applicant with less than the minimum grade point average required or with a less than satisfactory GRE, GMAT, or MAT score may also be conditionally admitted into a graduate program based on the recommendation of the departmental Graduate Studies Committee. The first 12 semester hours the conditional student must complete will be assigned by the graduate advisor. Frequently, special conditions will be included regarding the number of semester hours to be taken and the specific GPA to be maintained. If these conditions are not met, the student will not be allowed to continue to enroll in that particular program of the Graduate School.

Rejection: An applicant who fails to meet the minimum requirements for admission to a degree program will usually be denied admission into that program. An applicant meeting the requirements for admission may be denied by the Graduate Studies Committee of the proposed major if the number of qualified applicants exceeds the number of students that can be accommodated in the available facilities or that can be adequately instructed by the available faculty. A student who has been rejected may reapply at a later time, may apply to another program, or may apply as a post-baccalaureate student.

INCOMPLETE ADMISSION FILE: A citizen or permanent resident of the United States who has applied for admission into a graduate program and has furnished official transcripts but who has not furnished the official test scores required for admission is eligible to enroll for one semester, but the admission file will not be forwarded by the Office of Graduate Student Services for departmental consideration until all official documents have been received.

A student whose file is incomplete may register for graduate courses only with the permission of the graduate advisor; however, such enrollment does not constitute admission into a graduate program. Courses taken prior to formal admission into a graduate program cannot be counted toward a graduate degree without the specific recommendation of the departmental committee on graduate studies and approval of the Graduate School. Such approval is rarely given for coursework taken after the student's first semester of study and is limited to nine semester hours.

Students will be denied further enrollment after their first semester if all admission documents have not been received by the Graduate Student Services Office.

POST-BACCALAUREATE ADMISSION: An individual who has received a baccalaureate degree but who does not wish to apply for admission into a graduate program may apply for admission as a post-baccalaureate student. This type of admission is available to individuals who:

1. are not seeking a graduate degree and wish to enroll in courses to enrich their educational background;
2. intend to enter a graduate program at some future date, but need a substantial number of hours of prerequisite coursework; or
3. wish to obtain teacher certification or endorsement.

Interested individuals must complete the Application for Post-Baccalaureate Admission and must submit to the Graduate Student Services Office an official transcript with the baccalaureate degree posted. If several institutions were attended, an official transcript is required from each institution from which junior/senior, and any graduate level credit was earned. UTEP transcripts are not required of students who received their baccalaureate degree from UTEP.

Post-baccalaureate admission is not available to international students who need a student visa (I-20) to attend school in the United States.

Admission as a post-baccalaureate student does not constitute admission into a graduate program of the Graduate School. An individual who wishes to apply for admission into a graduate program must complete the Application for Admission into a Graduate Program and provide the documents described under "Admission into a Graduate Program."

Post-baccalaureate students may register for graduate courses only with the permission of the graduate advisor for the graduate program to which the courses belong. However, no more than nine semester hours of courses taken prior to acceptance or conditional acceptance to the Graduate School may be approved for use toward a graduate degree. Such approval is given only for courses with a grade of "B" or better upon the recommendation of the graduate advisor.

RESERVING COURSES FOR GRADUATE CREDIT: Undergraduates are usually not eligible to take graduate courses. It is possible for seniors to register for graduate courses in their last semester under the following conditions:

1. The undergraduate must not lack more than 12 semester hours (or six semester hours in summer session) of work to complete all requirements for the baccalaureate degree and must have a grade-point average of at least 3.0 in junior and senior level courses.
2. These 12 hours (or less) must all be completed in the same semester or summer session in which the graduate courses are taken.
3. Total enrollment for all work must not exceed 15 semester hours (or nine hours in a summer session).
4. All enrollment in graduate courses must be approved prior to registration by the departmental graduate advisor, the undergraduate dean, and the Director of Graduate Student Services.
5. This option is limited to one term.

Credit for graduate courses cannot be counted toward a baccalaureate degree; it can be reserved for credit toward a graduate degree. A student who has a baccalaureate degree is not eligible to reserve courses for graduate credit unless enrolled at the undergraduate level working towards a second baccalaureate degree. The form for reserving courses is available in the Office of Graduate Student Services. Approval to reserve work for graduate credit neither constitutes nor implies admission to any graduate program.

Policies and Procedures

Academic Regulations

REGISTRATION: Although every effort is made to advise students academically, final responsibility for registration rests with the student. Students may attend only those classes for which they are enrolled. Students must be enrolled during any term in which they utilize any University facilities, equipment, and resources, including research work, consultation with faculty, or required examination. 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. After registration, class enrollments can be verified with the Director of Graduate Student Services or the Office of the Registrar.

University policy and dates governing registration and changes in registration are printed in the *Class Schedule* which is available prior to each semester or summer session.

IN-ABSENTIA REGISTRATION: A registered degree candidate who has completed the final requirements for the degree (including submission of the thesis/dissertation, professional report or project) too late for the semester deadline but before the first on-campus registration day of the following semester may register *in absentia* in the following semester or summer session for the sole purpose of receiving the degree. A student registered *in absentia* may not enroll for any additional hours in the same program. See the Tuition and Fees section for a discussion of applicable fees.

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 fall and spring semesters, and, by the sixth day of class during the summer session. Students should report to the Record's counter to obtain an Audit Registration Form.
5. This form must then be signed by the instructor teaching the course and the department chair. Bring the completed form to the Cashier, located in the Academic Services Building, for payment. Leave the "paid" audit registration form with 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.

STUDENT-INITIATED REGISTRATION CHANGES: The student should refer to the academic calendar at the beginning of this catalog or in the semester 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*. All student-initiated changes in registration require payment of an Add/Drop Fee.

Course Drops. It is the student's responsibility to officially drop any course that he/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 and should consult the paragraphs on "Withdrawal from the University."

Classes dropped prior to the official census date of any term will be deleted from the student's semester record. Course drops filed by the student after this period but prior to the final deadline (end of the 6th week of a long session or an appropriately shorter period during a summer session), will result in a grade notation of *W*.

After the student drop deadline, students may be dropped from class only with approval of the instructor, who will initiate the drop transaction and assign the grade of *W* or *F*. Instructors are not obligated to drop students (see "Faculty-Initiated Course Drops" below). Request for withdrawal after the final examination date for the course cannot be approved.

Students appointed as teaching or research assistants are expected to maintain the approved course load. Withdrawal from a course will jeopardize an appointment.

FACULTY-INITIATED COURSE DROPS: At the discretion of the instructor, a student may be dropped from a course because of excessive absences or lack of effort. In all faculty-initiated course drops, the instructor determines whether the student is to receive a grade of *W* or *F*.

Students whose behavior in the classroom disrupts the teaching-learning process may be dropped upon the recommendation of the instructor, subject to the approval of the Dean of Students.

Faculty-initiated course drops, resulting in a change to part-time status, will jeopardize a student employment appointment.

COURSES TAKEN ON A PASS/FAIL BASIS: A student may elect to take an S or U (Pass/Fail) grade in a course, but this course cannot count as deficiency work or as a part of the minimum requirements for a degree except for internships and practica when designated by the department.

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* or *F*.

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 inform their class instructor, and the students will be permitted to make up both assignments and examinations in consultation with their instructor.

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 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*.

DEAD DAY: This specific day will be scheduled one day after the last day of classes only during the fall and spring semesters. The following policy will be observed:

1. No classes will be held on this day, except classes which meet once a week on that day;
2. Make-up exams should be left to the **discretion** of each individual instructor;
3. All student work (i.e. research papers, lab reports, term paper, etc.) should be due prior to this day;
4. If a comprehensive final is given, no new material, quizzes, or exams should be given two calendar days prior to "Dead Day" and attention should be given to reviewing semester material. Implementation of this recommendation is to be left to the **discretion** of the individual instructor.

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*.

COURSE LOAD: Graduate students who enroll for at least nine hours during a long semester or for at least six hours during a summer session are considered full-time graduate students. All other graduate students are considered part-time.

The maximum course load for a graduate student is 15 semester hours during a long semester, or nine semester hours in a summer term; registration in excess of these maxima must have the special consent of the Director of Graduate Student Services and will be permitted only under exceptional circumstances.

Credit for supervised teaching is not counted in determining combined course and work load.

GRADES AND GRADE-POINT AVERAGES: Students must maintain a 3.0 or higher GPA in their major field. Credit is given in the Graduate School for the grades A, B, and C. Every semester hour of C, however, must be balanced by one of A, because the degree candidate is required to present an overall grade-point average of 3.0. Grades of D or F are not acceptable in courses which are to be used to satisfy minimum requirements for the graduate degree; such courses must be retaken. In the event that a graduate student making a D is allowed to continue, the D must be balanced by two A's. An F must be balanced by three A's. A grade of A in a thesis course, dissertation course, or in a specifically authorized seminar, conference, or research course involving a report in lieu of a thesis may not be used to affect the GPA. Only upper division and graduate level courses taken in graduate status at the University or reserved in the senior year for graduate credit (except thesis, dissertation and authorized courses) are counted in the average.

In some courses the standard grading system is not practical; such courses are not counted in the grade-point average. Grades which fall in this category include I (incomplete), P (in progress), W (withdrawal), and S or U (in Pass/Fail courses).

INCOMPLETE OR IN PROGRESS WORK: Assignment of the grade I (incomplete) is made only in exceptional circumstances and requires the instructor to file with the Director of Graduate Student Services an outline of the work to be completed and the time span (in no case longer than one calendar year) allowable for the work's completion. In no case may repetition of the course be assigned as work to be completed. If the work has not been completed at the end of the specified time, the I will be changed to an F. Students will not be cleared for graduation until all incompletes have been eliminated from their record.

The grade of P (in progress) is limited to specific courses in which re-enrollment is required. This includes all thesis/dissertation courses (3598-3599, 3620-3621, 3698-3699), graduate internships, and a few specified graduate courses. In appropriate courses a standard grade may be assigned instead of a P to a student enrolled in graduate internship courses.

ACADEMIC STANDING: Students admitted into graduate programs must remove all admissions conditions within the time required and must maintain, in addition to the overall grade-point average, a 3.0 or better average in all upper division and graduate courses in the major. Individual departments may impose more rigorous grading standards. High grades in courses outside the major will not serve to bring up these averages. On the other hand, high grades in the major may raise the overall average, provided they are in upper division or graduate courses.

Post-Baccalaureate students must maintain an overall grade-point average of 2.5 or higher.

ACADEMIC PROBATION AND DISMISSAL: A student admitted into a graduate program whose cumulative grade point average drops below 3.0 will be placed on academic probation and must return his or her grade point average to at least 3.0 by the completion of the next nine semester hours of work. Failure to meet the 3.0 grade point average requirement during the probationary period will result in the student's dismissal from the Graduate School. A student who has been dismissed may be readmitted for further graduate study in the same or in a different program only upon the recommendation of the relevant graduate studies committee and the approval of the Director of Graduate Student Services.

Post-Baccalaureate students whose cumulative grade point averages drop below 2.5 will be placed on academic probation and must bring their grade point averages up to at least a 2.5 by the end of their next nine credit hours of enrollment. Failure to meet the 2.5 grade point average requirement during the probationary period will result in the student's dismissal from the University.

RESIDENCE: The minimum requirement for any degree is two semesters or the equivalent, which need not be consecutive.

A graduate student may register for certain courses without being in residence at the University. These include conference courses (with permission of the instructor), thesis, and dissertation courses.

No student may receive advice and assistance from a member of the faculty in the preparation of a thesis or dissertation without being registered (if necessary, for multiple semesters) for the appropriate thesis course.

COURSES COUNTED FOR ANOTHER DEGREE: No course counted toward another degree may be counted toward a graduate degree, either directly or by substitution.

PROGRAMS OF STUDY: During the first semester of graduate study each student must submit to the Graduate School for approval a Preliminary Program of Study signed by the departmental graduate advisor. The Preliminary Program of Study should show the courses required by the department which the student must complete prior to graduation. The selection of a supervising committee, composed of at least two departmental representatives and one member from outside the department (all members of the Graduate Faculty), may be delayed to the second semester of graduate study.

During the final semester of graduate study, each student must submit to the Graduate School for approval a Final Program of Study signed by the departmental graduate advisor. The Final Program of Study should show the courses taken and the courses required by the department which the student will complete during his or her last semester of graduate study. Programs which show an incomplete grade or an overall grade point average below a 3.0 average cannot be approved.

TRANSFER OF CREDIT: Ordinarily most work done for a graduate degree must be done at the University. For a master's degree usually 6 semester hours of graduate work may be transferred from another accredited institution. All course work transferred from other institutions requires both the approval of the committee on graduate studies in the student's major area and the Director of Graduate Student Services. In cases where such transfer is approved, the student must still meet the residence requirements of two full semesters or the equivalent. Courses for which a grade of "C" or lower was earned may not be transferred to UTEP. Correspondence courses are not accepted for graduate credit.

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

TIME LIMITS AND CATALOG CHANGES: All requirements for a master's degree must be completed within one six-year period, including any transfer work or work completed prior to admission to the program. Work over six years old is lost and can be reinstated only by special permission of the Director of Graduate Student Services upon the recommendation of the committee on graduate studies. For the policy on time limits for completing requirements for doctoral degrees, consult the section on specific doctoral programs.

General and specific requirements for degrees in the Graduate School may be altered in successive catalogs. Provided the requisite course continues to be offered, the student is bound only by the course requirements of the catalog in force at the time of admission or re-admission within a six-year limit, unless, with the approval of the Director of Graduate Student Services, he or she elects to be bound by the course requirements of a subsequent catalog. This regulation applies to course requirements only.

General Degree Requirements

PREREQUISITES: Every master's degree program is based on the assumption that the student participating in it already possesses a general college education through the baccalaureate level. Accordingly, the first prerequisite for the entering student is a baccalaureate degree from an accredited institution (or, for international and special students, proof of equivalent training). A second prerequisite is that the entering student must have taken at least 12 semester hours of advanced undergraduate courses in the area of study in which he or she proposes to pursue a graduate major. Some areas may require more semester hours of undergraduate preparation. Students must earn at least a 3.0 grade point average in any deficiency work required. If a student without adequate preparation still wishes to enter a given graduate program, admission will be conditional until such time as the student has completed the courses of preparatory work designated by the graduate advisor. These courses will be in addition to the 30 hours (or more) required for the master's degree itself.

COURSE REQUIREMENTS: At least 30 semester hours of upper division and/or graduate instruction are required for any master's degree. Nine semester hours of upper division courses approved for graduate credit are the maximum allowable in any individual's program. Undergraduate courses taken for graduate credit will require additional work, the amount and nature of which to be determined by the instructor. Every proposed program of work needs the approval of the Director of Graduate Student Services. The Graduate School discourages students from concurrently working toward more than one graduate degree at the same time.

THESIS REQUIREMENTS: The candidate must be accepted into a graduate program prior to pursuing the thesis. The candidate for the master's degree writes a thesis under the direction of a supervising committee, consisting of at least two departmental representatives and one member from outside the department. The thesis is subject to the approval of the committee and ultimately to the approval of the Director of Graduate Student Services. The researching and writing of the thesis usually involves 6 semester hours of credit. In order to earn the 6 credit hours for the thesis, the student must register for course 3598 when work on the thesis is begun. Thereafter, the student must register for 3599 during each semester or term in which work on the thesis is being done. Students may not enroll in 3598 and 3599 simultaneously, nor may they enroll in more than three hours of thesis at any one time, and must be **enrolled** during the semester of graduation.

Two completed and bound copies of the thesis, prepared according to the *GUIDE* book (available through the Graduate School), must be presented to the Graduate School prior to the deadline date published in the *Class Schedule* for the semester in which the student intends to graduate. Both copies of the completed thesis submitted to the Graduate School must bear original signatures of the members of the thesis committee.

If a student has not completed thesis work at the end of two years after the subject has been approved and recorded, the supervisor may require the choice of another subject. Credit in the thesis course will not be granted until the thesis is completed and approved. Information on thesis preparation should be obtained from the Office of Graduate Student Services.

DISSERTATION REQUIREMENTS: The candidate must be accepted into a graduate program prior to pursuing the dissertation. The candidate for the doctoral degree writes a dissertation under the direction of a supervising committee. For composition of the supervising committee the student should refer to the section in this catalog that describes his/her respective doctoral program. The semester hours earned from the research and writing of the dissertation will depend upon the departmental program of study. The student must register for course 3620 or 3698 when work on the dissertation is begun. Thereafter, the student must register for course 3621 or 3699 during each semester or term in which work on the dissertation is being done. Students may not enroll in 3620 and 3621, nor in 3698 and 3699 simultaneously.

An unbound original and two bound copies of the dissertation must be presented to the Graduate School prior to the deadline date published in the *Class Schedule* for the semester in which the student intends to graduate. The dissertation must be prepared according to the *GUIDE* book (available through the Graduate School), and must bear the original signatures of the supervising committee.

With the dissertation the student must also present to the Graduate School two copies of an abstract not to exceed 350 words in length (double-spaced). The abstract will be forwarded to University Microfilms International for publication in "Dissertation Abstracts International."

The Graduate School also forwards the signed unbound original dissertation to University Microfilms International in Ann Arbor, Michigan, for micropublication. The student is required to pay the cost of microfilm reproduction to the Graduate School. Students presenting dissertations to the Graduate School must also complete and sign microfilm agreement forms that are available in that office.

SUBSTITUTIONS FOR THE THESIS: In selected programs, non-thesis options are available in lieu of the thesis. The particular option for each student must be approved by the departmental graduate advisor and the Director of Graduate Student Services. Among such non-thesis options are internship reports (where the internship is approved as an essential part of the graduate program by the Director of Graduate Student Services), professional reports, and reports or formal papers prepared in certain graduate seminar or conference-type courses. Reports should be comparable to the thesis in every respect except for the evidence of original research.

Reports and other formal papers are normally completed just as theses are; they must be reviewed and accepted by the supervising committee and upon acceptance of the report by the committee, the candidate submits two bound copies, consistent with theses in all respects, to the Graduate School for approval.

FINAL EXAMINATION: All graduate degree candidates are required to complete satisfactorily an oral or written examination or both. The examining committee, consisting of at least three members, will normally be the student's supervising committee. The committee will have one representative from the minor area, if the program has one. If there is no minor, one member of the committee must be from another department. Individual departments may elect to drop a student after a first or second failure of the examination upon the recommendation of the examining committee, but under no circumstances will a student be permitted to take the examination more than three times; a student failing such an examination for the third time will be dropped from the program.

GRADUATION REQUIREMENTS:

1. completion of all required course work as listed on the approved Final Program of Study,
2. acceptance of thesis, dissertation, or reports by the Graduate School,
3. satisfactory completion of an oral or written exam or both,
4. filing of an approved and paid Application for the Graduate Degree with the Cashier's Office for processing by the Records Office.

DEGREE APPLICATION PROCEDURES: Graduate degree candidates must submit an Application for the Graduate Degree in the semester in which they expect to graduate and by the deadline date stated in the semester *Class Schedule*. This form must be completed by the student and approved by the Graduate Advisor. The student must bring the advisor-approved form to the Graduate School two to three weeks before the published deadline date to allow a complete review of the academic record. The degree application process is completed by payment of the Graduation Fee and filing the approved and paid application in the Cashier's Office, which will be forwarded to the Records Office for processing. This fee is not refundable if the student does not graduate on the date specified in the application.

GRADUATION: Degrees are conferred at the end of each semester and at the end of the summer session. Formal commencement ceremonies are held in May for all candidates who complete degree requirements during the Spring Semester and in December for Fall candidates and graduates of the previous summer.

POSTHUMOUS DEGREE: A posthumous degree may be awarded only if the student was enrolled in courses that would have allowed the student to complete all work for the degree, and if the student had the appropriate grade point average (GPA) in the required areas. For further details, contact the Graduate Student Services Office, (915) 747-5491.

Specific Degree Requirements

Specific degree requirements for both doctoral and master's degree programs are described in this catalog under the departmental or program listing.

Degree requirements for the Interdisciplinary Ph.D. programs (Materials Science and Engineering and Environmental Science and Engineering) are detailed in the section describing interdisciplinary degree programs.

COOPERATIVE ADVANCED DEGREE PROGRAMS

The University of Texas at El Paso is pleased to offer several cooperative degree programs with other University of Texas institutions.

COOPERATIVE DOCTORAL PROGRAM IN BORDER STUDIES: The University of Texas at El Paso and The University of Texas at Austin have long shared a vibrant interest in Latin America, Mexico, and the U.S.-Mexico borderlands.

Strong faculty, dynamic research centers, outstanding libraries, and exceptional field laboratories enable this program to offer unique opportunities for graduate study and research in these fields.

Through the Cooperative Doctoral Program in Border Studies, a graduate student may pursue studies focusing on the U.S.-Mexico borderlands within the following academic majors: sociology, geography, applied linguistics, history, economics, government (political science), anthropology, social work, community and regional planning, and Latin American Studies.

Since UT Austin is the degree-granting institution, the details of each student's program of studies must be developed within the context of departmental requirements and procedures currently in effect at UT Austin. Every student will be required to spend at least one full academic year at the Austin campus. At least six semester hours of course work and/or research must be completed at UTEP.

Admission to the program may be initiated at either institution. Students must qualify for admission to the Graduate Schools at UTEP and UT Austin and comply with all of the academic regulations of both campuses throughout the duration of the program. Students must also demonstrate oral and written competency in both English and Spanish to participate in the program.

Further information about the program may be obtained at the Center for Inter-American and Border Studies at UTEP, or the Graduate School at either institution.

COOPERATIVE DOCTORAL PROGRAM IN PHARMACY: The University of Texas at Austin offers a portion of the PharmD degree in El Paso. While UTEP provides some facilities for preceptorships, UT Austin is responsible for all of the curriculum and faculty. A significant portion of the coursework must be taken on the Austin campus. For additional information, contact the Director of the Pharmacy program on the UTEP campus located in the College of Nursing and Health Sciences.

COOPERATIVE MASTER OF LIBRARY AND INFORMATION SCIENCE: The University of Texas at Austin provides a graduate program in Library and Information Science at UTEP. Students may study for a MLIS degree or for public school certification in library.

Two courses are offered each semester and two are offered in the summer. Students may enter the program at any time. The courses are taught by faculty from Austin; most are televised distance learning classes.

Further information about the program can be obtained from Assistant University Librarian for Collection Development at 747-6722. Applications are available in the Administrative Suite 316 of the UTEP Library.

COOPERATIVE MASTERS IN PHYSICAL THERAPY: The University of Texas Medical Branch at Galveston in cooperation with UTEP offers a Masters degree in Physical Therapy. Physical Therapy is a health profession whose primary purpose is the promotion of optimal physical function. Therapists apply scientific principles to prevent and treat acute and chronic movement disorders. Physical Therapy encompasses areas of specialization and includes the development of new approaches to more effectively meet existing and emerging health care needs. The professional program in physical therapy, which follows 90 hours of prerequisite study and selection to the program (application, interview, etc.), requires approximately three years. The first year starts in late May, and extends into the following April. During this year, students complete courses in basic and clinical sciences, and in basic physical therapy evaluation and treatment procedures. Students are introduced to legal, ethical and professional aspects of physical therapy and to the specialty area of cardiopulmonary physical therapy. Two full-time clinical experiences occur during the first year. During the second year, which begins in late May and continues into the following April, students study the management of patients with orthopedic and neurological abnormalities. Course work also addresses concerns

unique to pediatric and geriatric patients. In addition, students plan and initiate a research project under the supervision of faculty. Most of the third year, which begins in late May and ends in December, is devoted to clinical education. Time also is provided for elective courses and for completion of the research project. Full-time clinical experiences occur at facilities located in various parts of Texas and the surrounding states. Relocation to off-campus facilities is at the student's expense. The professional curriculum is fully accredited by the American Physical Therapy Association. Upon satisfactory completion of the program, students are eligible to become active members of the American Physical Therapy Association and to take the state licensure examination which is required in order to practice as a professional physical therapist. Further information about the program can be obtained by calling (915) 747-8207.

COOPERATIVE MASTER OF PUBLIC HEALTH: The University of Texas Health Science Center at Houston offers the Masters in Public Health degree (MPH) at UTEP. This program was developed to provide students with a basic foundation in public health, and an understanding of the unique health problems of the US-Mexico border through coursework and applied research. Courses are provided by the University of Texas - Houston School of Public Health faculty in residence at the El Paso campus, as well as through interactive television courses taught by faculty at both the Houston and San Antonio campuses. In addition, some upper division and graduate courses offered by UTEP academic departments may be taken concurrently and be considered in fulfillment of degree requirements. The program is fully accredited by the Council on Education for Public Health.

The El Paso satellite program provides students with the opportunity to study and conduct research in a bi-national and multicultural region. Students are expected to gain a competency in the five basic disciplines of public health (administration, behavioral sciences, biometry, environmental health, and epidemiology) with a focus on border health. Degree requirements include the completion of a minimum of 36 credit hours, including a Masters thesis in which students examine a specific health issue in depth. The University of Texas - Houston Health Science Center School of Public Health is the degree-granting institution.

COOPERATIVE MASTER OF SCIENCE IN SOCIAL WORK: The University of Texas at El Paso and The University of Texas at Austin cooperative M.S.S.W. degree program is intended to respond to expressed community and regional interests that will enhance social work practice and service and at the same time provide an opportunity for the development of research and knowledge related to the border region, its people, and its distinctive problems.

Students enrolled in the cooperative program will receive, upon graduation, an M.S.S.W. degree from UT Austin. Furthermore, most of the courses taken by students enrolled in the program will be taught by faculty members from Austin. However, some courses, particularly those which emphasize social work issues and concerns in a bicultural and borderlands environment, will be taught by UTEP faculty.

In addition to enrolling in 42 semester hours of classroom instruction, students will complete 18 hours of field placement instruction. The El Paso Program offers two nations and three states as possible settings for field practicums. El Paso, Texas, Cd. Juárez, Chihuahua, Mexico, and Las Cruces, New Mexico offer exciting field placement opportunities.

All of the classroom work will be held on the UTEP campus and courses are taught in the evenings and on weekends.

Further information about the program can be obtained from the Program Coordinator who is located in the Department of Sociology and Anthropology on the UTEP Campus. That telephone number is (915) 747-5740.

FINANCIAL INFORMATION

Financial Information

Financial Assistance

UTEP's graduate students can finance their education by working and/or by taking advantage of the University's available financial assistance awards and programs.

Financial aid is divided into the following types: merit-based, need-based, and employment. Merit-based awards are granted on the basis of the student's previous academic performance. Need-based aid is awarded according to the level of the student's financial need, with some consideration of the student's past academic performance. Employment includes jobs, both on and off campus.

Merit-Based Awards

Merit-based awards consist of scholarships and fellowships. Scholarships are primarily awarded on the basis of the student's previous academic work. Fellowships are generally awarded according to a student's exceptional academic work and/or previous or proposed research in the student's field of study.

To apply for all UTEP scholarships and fellowships, a student should submit the application form to the Scholarship Office. Forms are available from academic department offices, the Graduate School, and the Scholarships Office. Priority deadline for submitting applications for graduate scholarships and fellowships is February 15 to receive awards for the following year.

Need-Based Awards

There are a limited number of need-based scholarships available for Texas residents who demonstrate financial need and who meet certain academic requirements. To apply for this scholarship, the student must apply for financial aid through the Office of Student Financial Aid and must also submit an Application for Financial Assistance to the Scholarship Office.

The Office of Student Financial Aid coordinates the processing of all other need-based awards. The amount and type of financial assistance provided will be by means of educational loans, grants, and student employment (Federal College Work-Study) programs. Certain emergency loan funds or fee exemptions may also be available. Students admitted into graduate programs are eligible if they have documented need, meet academic eligibility criteria, enroll on a full-time basis, and meet the February 15 financial aid application deadline. Financial aid recipients must make satisfactory academic progress in order to maintain award eligibility. Information about financial aid application procedures and standards for academic progress may be obtained from the Office of Student Financial Aid, 202 Union West, El Paso, TX 79968, (915) 747-5204.

Educational Stipends

Limited financial support is also available through educational stipends to participants in sponsored research or other projects, or fellowship programs. Stipend support generally does not qualify for a waiver of non-resident status for tuition purposes. For stipend eligibility, contact the academic department's research programs office, or, for international students, the International Student Services Office, Union Building, West, Room 211, (915) 747-5664.

PATRICIA ROBERTS HARRIS FELLOWSHIPS

The fellowship may be available to highly qualified women and/or minority students traditionally under represented in specific academic fields. Contact the academic department or the Graduate School for details.

Employment

Graduate Assistantships - Teaching and Research Assistantships may be available based on merit qualifications. Teaching assistants perform assigned instructional duties under the supervision of a faculty member. Research assistantships are highly variable and usually involve assisting a faculty member in the accomplishment of certain research projects. The total of all on-campus student employment is limited to 20 hours per week. The Application Form is available at academic departments and colleges, the Scholarship Office, and the Graduate School and should be completed by the student and submitted to the academic department of the student's major.

Other Employment Opportunities - Information about other forms of employment which may include the Cooperative Education Program, internships, summer employment or part-time employment may be obtained from the Career Services Office, Union West.

TUITION AND FEES

The charges shown in these schedules must be paid by all students registering for credit. The amounts include the following:

TUITION

TEXAS RESIDENTS - $32 per semester hour with a minimum assessment of $120 for up to 3 semester hours.

TEXAS RESIDENT GRADUATE TUITION - Business, Engineering and Nursing - $60.00 per semester hour with a minimum assessment of $120.00 for up to 2 semester hours.

NON-RESIDENT/INTERNATIONAL TUITION- $246.00 per semester hour effective through the 1996-1997 academic year. Non-resident/International students will be assessed the actual cost of education per semester hour as determined by the Texas Higher Education Coordinating Board.

NON-RESIDENT/INTERNATIONAL GRADUATE TUITION - Business, Engineering and Nursing $266.00 per semester hour.

CONCURRENT ENROLLMENT - Section 54.062 of the Texas Education Code provides for the following tuition procedure.

1. The student shall pay the full tuition charge to the first institution at which he or she is registered.
2. Generally, only the hourly rate is paid at the second institution. However, if the minimum amount is less at the first institution, then the student must pay the difference of the two minimums to the second institution but not less than the hourly rate. General fees, student service fees, union fees, and optional fees are billed by each institution at its regularly authorized rate.

MANDATORY FEES

GENERAL FEE - $18.50 per semester hour.

STUDENT SERVICE FEE - $12.50 per semester hour, to a maximum of $150.00 (12 semester hours)

STUDENT GENERAL PROPERTY DEPOSIT - $10.00 fee assessed at the time of the student's initial registration at the University. This fee is refundable to the student at the end of his or her University enrollment less any loss, damage or breakage caused by the student. A property deposit which remains without call for refund for a period of four years from the date of last attendance at the University will be forfeited and will become the property of the Student General Property Deposit Endowment Fund. Such funds will be invested and the income will be used for scholarship purposes.

INTERNATIONAL EDUCATION FEE - $1.00 per student for each regular semester.

STUDENT UNION FEE - $15.00 per long semester and $7.50 for summer session. The Student Union Fee is compulsory. The Union Fee entitles the student free use of facilities, which includes meeting rooms and lounge areas. The purpose of this fee is for the maintenance and operation of the Union Building.

RECREATIONAL FACILITY FEE - $12.00 per student for each regular semester.
TECHNOLOGY FEE - $50.00 per student for each regular semester.
REGISTRATION FEE - $5.00 per student for each regular semester.
COURSE-RELATED FEES - assessment of varying amount, based on courses for which the student is enrolled.

TUITION AND MANDATORY FEES (excluding Student General Property Deposit):**

Semester Hours	Resident UG/Grad Educ, LA & Scl.	Non-Res UG/Grad Educ, LA & Scl.	Graduate Resident In Bus, Engr, NHS, MASE & ESE	Graduate Non-Res In Bus, Engr, NHS, MASE & ESE
1	$ 234.00	$ 360.00	$ 234.00	$ 380.00
2	265.00	637.00	265.00	677.00
3	296.00	914.00	356.00	974.00
4	335.00	1191.00	447.00	1271.00
5	398.00	1468.00	538.00	1568.00
6	461.00	1745.00	629.00	1865.00
7	524.00	2022.00	720.00	2162.00
8	587.00	2299.00	811.00	2459.00
9	650.00	2576.00	902.00	2756.00
10	713.00	2853.00	993.00	3053.00
11	776.00	3130.00	1084.00	3350.00
12	839.00	3407.00	1175.00	3647.00
13	889.50	3671.50	1253.50	3931.50
14	940.00	3936.00	1332.00	4216.00
15	990.50	4200.50	1410.50	4500.50
16	1041.00	4465.00	1489.00	4785.00
17	1091.50	4729.50	1567.50	5069.50
18	1142.00	4994.00	1646.00	5354.00
19	1192.50	5258.50	1724.50	5638.50
20	1243.00	5523.00	1803.00	5923.00
21	1293.50	5787.50	1881.50	6207.50

**Tuition and fees are subject to change due to legislative and/or institution action and become effective when enacted.

LABORATORY FEES

		FEE
ARTE	3522, 3317	$ 15.00
ARTF	3101, 3103	$ 10.00
ARTF	3102, 3104	$ 4.00
ARTF	3315	$ 20.00
ARTG	3206, 3216, 3316, 3326, 3336, 3406, 3416, 3426, 3550	$ 20.00
ASTR	1107, 1108	$ 5.00
BIOL	1103, 1107, 1498, 2498, 3426, 3505, 3518, 3520, 3524	$ 8.00
BIOL	1104	$ 6.00
BIOL	1211, 1213	$ 15.00
BIOL	1217, 1319, 2423, 3498, 3502, 4314, 5502	$ 30.00
BIOL	3330	$ 10.00
BOT	4210	$ 12.00
BOT	4337	$ 8.00
CE	1336, 1453	$ 30.00
CE	3105, 3313, 3488, 4390, 4456	$ 8.00
CE	4448, 4509, 4539	$ 20.00
CE	4537	$ 28.00
CERM	3204, 3214, 3304, 3314, 3324, 3404, 3414, 3424	$ 15.00
CERM	3550	$ 18.00
CHEM	1105, 1106	$ 10.00
CHEM	1261, 1310, 1324, 1325, 2321, 2322, 2412	$ 18.00
CHEM	1465	$ 8.00
CHEM	1351, 1352, 4108	$ 12.00
CHEM	4107	$ 15.00
CHEM	1476, 3476	$ 5.00
CLSC	1401, 1406, 2311, 3401, 3402	$ 30.00
CLSC	3306, 3308	$ 15.00
COMM	3242, 3317, 3342	$ 10.00
COMM	3271, 3311, 3313, 3411	$ 5.00
COMM	3243, 3333	$ 7.00
COMM	3331	$ 15.00
DRAW	3208, 3318	$ 8.00
DRAW	3218	$ 20.00
DRAW	3308	$ 15.00
EE	1412, 1442, 1478, 3472	$ 20.00
EE	2412	$ 25.00
EE	1205, 1251, 2310, 2411, 4377	$ 5.00
GEOG	1106	$ 15.00
GEOL	1101, 1102, 1455, 1457, 3103, 3104, 3321, 3325, 3462	$ 15.00
GEOL	4458	$ 8.00
GEOL	4323	$ 5.00
GEOL	2316, 3213, 3305, 3315, 3355, 3380, 3543, 3544, 3563, 3567, 3575, 3576, 3578 ,3580, 4320, 4505	$ 20.00
GEOL	3214	$ 25.00
GEOP	3432, 3434, 3551	$ 20.00
GEOP	3557	$ 10.00
IE	3216, 3484	$ 6.00
IE	3236	$ 12.00
IE	3377	$ 5.00
KIN	3413	$ 5.00
MECH	1411	$ 25.00
MECH	3443	$ 15.00
MECH	3305, 4354	$ 5.00
MECH	4451	$ 20.00
MICR	1328, 1452	$ 8.00
MICR	1456, 4349	$ 15.00
MICR	4240, 4343, 4453	$ 30.00
MICR	4345	$ 24.00
MME	4404, 4405	$ 10.00
MME	4307, 4413, 4501	$ 25.00
MS	1113, 1116	$ 20.00
MTLS	3203, 3213, 3303, 3313, 3323, 3403, 3413, 3423, 3550	$ 30.00
NURS	7302, 7303, 7370, 7410	$ 30.00
NURS	6305	$ 4.00
NURS	3302, 7371, 7471	$ 5.00
NURS	7472	$ 15.00
NURS	6306, 7411	$ 10.00
PHYS	1120, 1121, 2343, 4103, 4104	$ 5.00
PHYS	3471	$ 15.00
PNTG	3201, 3231, 3301, 3331, 3341, 3401, 3431, 3441, 3550	$ 12.00
PRNT	3205, 3225, 3305, 3325, 3335, 3550	$ 30.00
PRNT	3405, 3425, 3435	$ 22.00
PSCI	3203, 3304	$ 15.00
PSYC	1301	$ 8.00
SCI	4101, 4102	$ 8.00
SCI	9101	$ 10.00
SCUL	3202, 3232, 3302, 3332, 3342, 3402, 3432, 3442, 3502, 3550	$ 30.00
ZOOL	4364	$ 16.00
ZOOL	1455, 1457, 4476, 4478	$ 8.00
ZOOL	1481	$ 30.00
ZOOL	4206	$ 12.00
ZOOL	4366	$ 18.00

SUPPLEMENTAL TUITION AND COACHING FEES

ART	3593	$ 10.00
ARTE	3599	$ 10.00
ARTG	3550	$ 10.00
CERM	3404, 3414, 3424, 3550	$ 10.00
DRAW	3410, 3420, 3430, 3502, 3550	$ 10.00
MTLS	3403, 3413, 3423, 3550	$ 10.00
MUSA	2181, 2191, 2391, 2581	$ 35.00
MUSA	3181, 3191, 3391, 3581, 3591, 4191, 4391	$ 50.00
PNTG	3431, 3441, 3550	$ 10.00
PRNT	3405, 3425, 3435, 3550	$ 10.00
SCUL	3402, 3432, 3442, 3502, 3550	$ 10.00

INCIDENTAL FEES

ART HISTORY MATERIALS FEE:

ART	3100	$ 5.00
ARTH	3105, 3106, 3310, 3319, 3329, 3339, 3409, 3419, 3429, 3439, 3519, 3529	$ 5.00

ATHLETIC TRAINING FEE:

KIN	3409, 3415	$ 30.00

COURSE FEES:

ART	3110	$ 10.00
ARTE	3447, 3511	$ 15.00
CHEM	1476, 3476	$ 7.00
CLSC	4406	$ 15.00
COMM	3290, 3459	$ 15.00
COMM	3435	$ 10.00
EE	1205, 1251, 2310, 2411, 4377	$ 15.00
EE	3269	$ 8.00
ESOL	2101	$ 2.00
ESOL	3105, 3106, 3109, 3111, 3112, 3201, 3202, 3203, 5110, 8110	$ 5.00
FREN	3201, 3202, 4101, 4102	$ 5.00
GEOL	3579	$ 20.00
GERM	3201, 3202, 4101, 4102	$ 5.00
GREK	4105, 4106	$ 5.00
HSCI	3203	$ 10.00
HSCI	3401, 3411	$ 5.00
IE	3377	$ 7.00
KIN	3434	$ 20.00
KIN	3561, 3571, 3572, 3574	$ 25.00
LATN	3201, 3202, 4101, 4102	$ 5.00
LING	4203, 4204	$ 2.00
MECH	3305	$ 20.00
MECH	4354	$ 7.00
NURS	3302, 7371	$ 25.00
NURS	7471	$ 10.00
PORT	3201, 3202	$ 5.00
PSYC	3533	$ 25.00
RUSS	3201, 3202, 4101, 4102	$ 5.00
SOWK	3370	$ 10.00
SOWK	4480	$ 4.00
SPAN	3201, 3202, 3203, 3204, 4101, 4102	$ 5.00
SPED	3430	$ 15.00
SPLP	3440, 3569, 3573, 6441	$ 20.00
THEA	3113, 3221, 3342	$ 10.00
THEA	3222, 3290, 3490	$ 25.00
THEA	3341	$ 23.00
THEA	3390	$ 15.00

EQUIPMENT FEES:

ASTR	1107, 1108	$ 5.00
GEOP	2558	$ 15.00
HSCI	3209	$ 5.00
KIN	3413	$ 9.00
MUSA	1143, 1144, 1146, 2171, 2172, 2179, 2271, 2272, 3275, 3276, 3371	$ 5.00
NURS	3503	$ 25.00
PHYS	1120, 1121, 2343, 4103, 4104	$ 5.00

FIELD TRIPS FEE

GEOL	4323	$ 20.00
GEOL	6465	$400.00

PHYSICAL EDUCATION COURSE FEES:

KIN	2301, 2302, 2303, 2304, 2305, 2306, 2307, 2309, 2310, 2311, 3318, 3419	$ 8.00
KIN	2422, 3412, 3413, 3421	$ 9.00
PE	1101, 1104, 1110, 1116, 1122, 1125, 1149, 1151, 1152, 1157, 1161, 1170, 1173, 1186, 1188	$ 8.00
PE	1107, 1143, 1164, 1176, 1178, 1179, 1180, 1182, 1184, 1191, 1194, 1195, 1196	$ 12.00
PE	1128, 1129	$ 14.00

PSYCHOLOGY RESEARCH COURSE FEE:

PSYC	3598, 3599, 3620, 3621	$ 30.00
PSYC	3452, 3501	$20.00
PSYC	6501	$40.00

INCIDENTAL FEES:

ADD/DROP FEE - A fee of $5.00 is assessed per transaction each time a student makes a change in the initial registration.

AUDIT FEE - A fee of $5.00 per course will be assessed to a student who is currently enrolled at the University for auditing a course. For a person who is not enrolled at the University a fee of $25.00 per course will be assessed.

ART HISTORY MATERIALS FEE - A fee of $5.00 per course will be assessed to defray costs of slides and videos in art history and art appreciation courses. (See above)

ATHLETIC TRAINING FEE - A fee of $30.00 per course will be assessed to defray costs of providing supplies and equipment for academic courses which provide instruction and practical experience in athletic training. (See above)

CATALOG FEE - A fee of $1.00 will be assessed to students that pick up the University catalog. A fee of $3.50 will be assessed to students that request a University catalog be mailed.

CERTIFICATION DEFICIENCY PLAN PREPARATION FEE - A fee of $20.00 is assessed to defray administrative costs of processing certification deficiency plans for those pursuing teacher certification.

COURSE FEES - A fee of $2.00-$30.00 per course will be assessed to defray the costs of materials. (See above)

DIPLOMA REPLACEMENT FEE - Diplomas are replaced at the student's request, if the student has lost the diploma or if the student's name has changed. A fee of $5.00 will be assessed to a student requesting a replacement diploma within one (1) year of the original order; a fee of $25.00 will be assessed to a student requesting a replacement diploma after the one (1) year period.

DISSERTATION FEE - A fee of $60.00 will be assessed to defray costs of microfilming and mailing graduate dissertations.

EMERGENCY LOAN PROCESSING FEE - A fee of $15.00 will be assessed to defray administrative costs incurred in processing and collecting emergency loan payments.

EQUIPMENT FEES - A fee of $5.00 - $25.00 per course will be assessed to defray cost of providing equipment for academic courses which provide instruction and practical experience in various courses. (See above)

EQUIPMENT SUPPORT FOR ELECTRICAL AND COMPUTER ENGINEERING - A fee of $25.00 per semester to support cost of open laboratory operations for Electrical and Computer Engineering.

FIELD TRIP FEE - To defray transportation and related costs associated with field trips. (See above)

GRADUATE APPLICATION FEE - A fee of $15.00 will be assessed to all non-international graduate students who apply for admission.

GRADUATION APPLICATION LATE FEE - A fee of $15.00 will be assessed to all candidates for graduation who make application for graduation after the regular processing period has been completed. This fee is paid each time an application for degree is filed after the processing period deadline and under no circumstances is subject to refund. Veterans attending the University under an exemption as defined elsewhere in this section are not exempt from payment of this fee.

GRADUATION FEE - A fee of $15.00 is required of candidates for graduation. This fee must be paid each time an application for degree is filed and under no circumstances is subject to refund. Veterans attending the University under an exemption as defined elsewhere in this section are not exempt from payment of this fee.

HANDBOOK FOR THE SOCIAL WORK PROGRAM - A $2.00 fee will be assessed to students in Social Work for a handbook required by the Council of Social Work Education.

HEALTH INSURANCE FEE - A mandatory insurance for international students holding nonimmigrant visas and living in the United States. The amount assessed will match the University of Texas System Student Insurance Plan premium.

IN ABSENTIA FEE - A fee of $25.00 will be assessed to graduate students who have completed the degree requirements, including submission of the thesis or dissertation, after the semester deadline, but prior to registration for the following semester to register for the sole purpose of receiving the degree.

INSTALLMENT TUITION HANDLING FEE - A fee of $12.00 per academic term will be assessed to cover costs related to providing installment payment option.

INSTALLMENT TUITION DELINQUENCY FEE - A fee of $15.00 per delinquent payment will be assessed to defray costs of handling delinquent installment tuition payment.

INSTRUMENT USERS FEE - **Music** - A fee of $15.00 will be assessed to students per semester that wish to use musical instruments that are available through the Music Department.

INTERNATIONAL STUDENT APPLICATION FEE - A fee of $65.00 is assessed of all international students who apply for admission to UTEP. Applications not accompanied by a $65.00 check or money order, payable in U.S. funds, will not be considered. An individual who has applied, paid the fee, and been accepted but who does not enroll, will be considered for later admission only upon reapplication including payment of this fee again.

INTERNATIONAL STUDENT SERVICE FEE - $20.00 per long semester and $10.00 per summer session. A fee assessed to international students to defray the costs of operating the International Student Services' Office and supporting the programs that are unique to international students.

LATE ADMISSION APPLICATION FEE - A fee of $15.00 will be assessed to applicants that file after the scheduled deadlines to submit applications for admission to the University.

LATE REGISTRATION FEE - 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 registration process, $30.00 for in person late registration and $50.00 on or after the first class day. The fee is to defray the cost of the extra services required to effect the late registration.

LIBRARY FEES - To cover costs associated with handling special items, damaged and/or overdue books, the library charges the following fees.

Overdue Charges	
Regular Checkouts	$0.25/day ($25.00 max)
Reserve Items	$2.00 Overnight $.50/hour ($25.00 max)
Inter-Library Loans	$1/request plus any charges from the lending library
Lost Books	Cost of book plus $10.00 processing fee and any fines accrued
Inter-Library Loans	All costs charged by suppliers plus $0.50/request (or $2.00 per request for rush fee)
Computer Searches	115% of connect time plus any off-line print charges
Damaged Book Fee	$10.00
Recall Fee	$1.00/day ($25.00 max)
Media-Charges	Varies depending on type of equipment/service
Photocopier	$0.05 to $0.50/copy $0.15/microfilm or fiche
Architectural Drawings and Blueprint Reprographic Fee	$5.00 per item plus actual costs
Special Collection Photographic Reproduction Preservation Fee	$5.00 plus actual costs

NEW STUDENT ORIENTATION FEE - A $17.50 to $35.00 fee will be assessed to all students that participate in the University's orientation program that is offered to all incoming Freshmen and new transfer students. The varying amount allows an option to students for a shortened orientation.

NEW STUDENT ORIENTATION LATE FEE - A $5.00 fee will be assessed each student registering after the deadline.

PHYSICAL EDUCATION COURSE FEES - A fee of $4.00 to $20.00 will be assessed to defray costs of the purchase of supplies and maintenance of equipment. (See above)

PSYCHOLOGY RESEARCH COURSE FEE - A fee of $10.00 to $60.00 will be assessed to all students enrolled in psychology research courses to defray costs of course supplies. (See above)

REGISTRATION FEE - A $5.00 per semester fee will be assessed each registering student to defray costs associated with technology services for telephone registration.

REINSTATEMENT FEE - A $30.00 fee will be assessed to cover costs related to reinstating an enrollment after students have been disenrolled for failure to meet University obligations.

RETURNED CHECK FEE - A fee of $15.00 will be assessed to students that issue payment to the University with a check that is returned to the University for insufficient funds.

SCIENCE AND ENGINEERING ENRICHMENT EXPERIENCE - A fee of $50.00 will be assessed to all incoming freshman and transfer students attending the enrichment experience in the College of Science and College of Engineering to defray costs associated with the enrichment program.

SPECIAL EXAMINATION FEE - A fee of $5.00 per examination is required of persons who wish to take an advanced standing examination, an examination to remove a condition, or an examination to be given at time other than that for which it is regularly scheduled. Permission of the academic dean must be secured before payment is made.

STUDENT HOUSING DEPOSIT - A $75.00 deposit will be assessed to all students applying for Residence Hall housing and a $150.00 deposit will be assessed to students applying for Student Family housing. A Student Housing Deposit will be forfeited under any of the following conditions.

a. A Housing Deposit which remains without call for refund for a period of four (4) years from the date of last attendance at the University;
b. For any reason of non-payment of rent and will be applied to the outstanding balance owed to the University and/or applied for repairs and damages (except for reasonable wear and tear) to the unit leased; or
c. Failure of a student to abide by the Terms and Conditions of Occupancy and/or the University and Student Family Housing Regulations or Residence Hall Regulations resulting in the University terminating a Student Family Housing Agreement or Residence Hall Agreement.

STUDENT IDENTIFICATION CARD REPLACEMENT FEE - A fee of $10.00 per card will be assessed students for reissuing a Student I.D. Card due to loss or destruction. Free I.D. Cards are issued to Freshman students and transfer students. Cards five (5) years or older are replaced free.

STUDENT TEACHING FEE - A fee of $50.00 will be assessed students approved for Student Teaching during the Fall and Spring semesters.

TEACHER CERTIFICATION CREDENTIALS FEE - A fee of $10.00 will be assessed to students enrolled in the Teacher Education Program who are having their academic credentials evaluated for meeting certification requirements set by the Texas Education Agency.

TEST FEE - Students requesting administration of graduate or undergraduate admission testing; professional certification testing, GED testing; or placement and credit testing will be assessed a fee ranging from $5.00 to $42.00 per test based on the test subscription costs.

TRANSCRIPT FEE - A fee of $2.00 will be assessed to students for an unofficial copy of their transcript. A fee of $5.00 will be assessed for an official copy. A fee of $7.00 will be assessed for an official copy with immediate processing.

PARKING FEE

The Board of Regents has approved parking fees as follows for those students desiring to park on the campus:

CLASSES OF PERMITS AND ANNUAL FEES

Perimeter Parking Lots

Allows the holder to park in any perimeter area designated for their particular class of permit.

Class A-P	$25.00	All Students (including Graduates)
	$19.00	If purchased during the Spring Semester
	$10.00	If purchased during the Summer Session

Remote Parking Lots

Allows the holder to park in any remote area designated for their particular class of permit.

Class A-E	$10.00	All Students

Other Class Permits

Class H	$ -0-	No charge if vehicle is in compliance with *Vernon's Annotated Texas Civil Statutes*, Articles 6675a-5-e, and 6675a-5e and 5.e.1 for disabled persons.
	$20.00	If issued to disabled person not in compliance with above
	$12.00	If purchased during the Spring Semester
	$ 6.50	If purchased during the Summer Session
Class M	$10.00	All Student motorcycles
	$ 6.50	If purchased during the Spring Semester
	$ 4.00	If purchased during the Summer Session
Class D	$ -0-	No charge for residents of University Residence Halls
Class V	$ -0-	No charge for residents of UTEP Village
Class R	$ 1.00	A non-refundable $1.00 fee per person, per semester shall be collected, separate from the regular parking decal fee. A minimum of three (3), maximum of five (5) students per group are required in order to participate in the Share-a-ride program.
Replacement Decal	$ 1.00	
Temporary	$ 5.00	One month only as approved

METHODS OF PAYMENT

Master Card, Visa and Discover will be accepted for payment of tuition and fees. The University offers the following two payment methods during long semesters only.

1. Full payment of tuition and all fees at the time of registration.
2. One half payment of tuition, mandatory and course-related fees at the time of registration, with the remaining two quarters due in equal installments by the sixth and eleventh week of classes.

Items for which payment CAN be deferred under Method 2 include the following:

- Tuition
- Mandatory Fees (General Fee, Student Services Fee, Student Union Fee, International Studies Fee, Technology Fee, Recreational Fee)
- Laboratory Fees
- Course-related Fees (such as Equipment Fees)
- Supplemental Fee for Fine Arts

Items for which payment MAY NOT be deferred include the following:

- Student General Property Deposit
- Optional Incidental Fees (such as Late registration, Add/Drop, Installment Tuition Handling Fees, etc.)
- Discretionary Fees (Liability Insurance, Health Insurance)
- Optional Fees (such as Parking Decal Fees)
- Amounts due for financial holds or from prior periods

The following additional policies will apply to deferral of payments:

1. All student account balances due from prior semesters, including items associated with payment deferred, must be paid in full before a student may begin registration for a subsequent semester.
2. A payment plan selected at the time of registration will be binding and will be applied in any subsequent add/drop activities; however, pre-payment of outstanding balances will be accepted.

   The University shall assess the Installment Tuition Handling Fee of $12.00 for those students choosing payment Method 2; this charge is payable at the time of registration. An Installment Tuition Delinquency Fee of $15.00 will be assessed at the end of the sixth and eleventh week of classes if the payment due for that period is not paid in full.
3. The Bursar's Office of the University will send bills during the fourth and ninth week, as appropriate, to students paying tuition and fees under Method 2.
4. The courses for which a student is enrolled on the official census date-12th class day in a long semester-will be the basis for the student's tuition and fees assessment. Except for students who officially withdraw up to the end of the refund period as indicated in the *Class Schedule*, no reduction in amounts due will be made after this date; further, the student is obligated to pay the assessed amounts whether or not class attendance is subsequently interrupted or terminated.
5. A student who fails to provide full payment of tuition and fees, including any late fees assessed, to the University when the payments are due is subject to one or more of the following:
   a. Bar against registration at the institution;
   b. Withholding of grades, degree and official transcript; and
   c. All penalties and actions authorized by law.

REFUND OF TUITION AND FEES

Refund policies are established by, and are subject to change by, the Legislature of the State of Texas and are applicable to withdrawals and dropped courses. Refunds of tuition, laboratory fees, general fees and student services fees will be made under the following conditions.

WITHDRAWALS - Students withdrawing during a long semester will be refunded applicable tuition and fees as follows:

Prior to the first class day	100 % less $15.00
During first five class days	80 %
During second five class days	70 %
During third five class days	50 %
During fourth five class days	25 %
After fourth five class days	No Refund

DROPPED COURSES - Refunds of applicable tuition and fees will be made for courses from which students drop within the first twelve class days of a long session semester or an appropriately shorter period for a summer session term, provided the student remains enrolled for that semester or term. Refund of tuition for dropped courses will be made only if the original payment exceeds the established minimum amount.

Refunds of tuition and fees paid in the student's behalf by a sponsor, donor or scholarship will be made to the source rather than directly to the student who has withdrawn or dropped courses, if the funds were made available through the University. Students who withdraw or drop courses must, in order to qualify for a refund, surrender all applicable privileges, including identification cards and athletic and cultural entertainment tickets. Refunds provided for above will be granted if applied for by the end of the semester in which the withdrawal or drop was appropriately completed. Refunds for students who owe balances in deferred payment of tuition/fees will be credited to the student's account, reduced by the amount of any unpaid charges and a reasonable administrative fee not to exceed the lesser of 5% of the tuition, fees, room and board, and other charges that were assessed for the enrollment period, or one hundred dollars.

REFUNDING FOR STUDENT IN TITLE IV PROGRAMS - As an institution participating in programs under Title IV of the *Higher Education Act of 1965* as amended ("Act"), the University of Texas at El Paso is required to refund unearned tuition, fees, room and board, and other charges to certain students attending the institution for the first time who have received a grant, a loan, or work assistance under Title IV of the Act or whose parents have received a loan on their behalf under 20 U.S.C. Section 1087-2. The refund is required if the student does not register for, withdraws from, or otherwise fails to complete the period of enrollment for which the financial assistance was intended. No refund is required if the student withdraws after a point in time that is sixty percent of the period of enrollment for which the charges were assessed. A refund of tuition, fees, room and board, and other charges will be determined for students who withdraw prior to this time. The refund is the larger of the amount provided for in Section 54.006, *Texas Education Code* or a pro rata refund calculated pursuant to Section 484B of the Act. Please note, if the student charges were paid by Title IV funds, a portion or all of the refund will be returned to these programs.

Housing Expenses

Residence Hall room rates are as follows:

Room Only

ONE SEMESTER CONTRACT – 4 months (110 days)

Double Room	$1,055
Suite (double occupancy)	1,205
Private Room (when available)	1,355
Private Suite (when available)	1,505

LONG SESSION CONTRACT – 9 months (220 days)

Double Room	1,850
Suite (double occupancy)	2,150
Private Room (when available)	2,450
Private Suite (when available)	2,750

* A $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 normal three (3) payments per semester plan.

Meal Plans

Optional meal plans are available throughout the long session and summer session by the University Food Services.

Student Family Apartments

Monthly rent (includes utilities)	$ 350

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
University of Texas at El Paso
El Paso, TX 79968-0534

RESIDENCY REGULATIONS FOR TUITION PURPOSES

The *Texas Education Code* authorizes the Texas Higher Education Coordinating Board to promulgate regulations governing residency status for tuition purposes in public institutions of higher education. These regulations are subject to change, and portions of the current regulations are reprinted below as a convenience to the student. The complete *Rules and Regulations: Residence Status* booklet prepared by the Texas Higher Education Coordinating Board can be reviewed in the Admissions Office.

A student entering UTEP for the first time or after an absence of more than one year should carefully review these residency regulations to make sure the correct tuition is paid.

INTRODUCTION

Under State statutes and Coordinating Board rules and regulations interpreting those statutes, a prospective student will be classified as a resident, non-resident, or international student. A person who has lived in the state under circumstances specified in these rules will be eligible for classification as a resident. A citizen, national or permanent resident of the United States who does not meet resident criteria will be classified as a non-resident. An alien who is not a permanent resident of the United States and who has not been permitted by Congress to adopt the United States as his or her domicile while in this country will be classified as an international student.

An individual classified as a non-resident or international student may qualify to pay resident tuition rates and other charges while continuing to be classified as a non-resident or international student under certain exceptions specified in these rules.

MINORS AND DEPENDENTS

STATUTE: SECTION 54.052(c) An individual who is 18 years of age or under or is a dependent and who is living away from his family and whose family resides in another state or has not resided in Texas for the 12-month period immediately preceding the date of registration shall be classified as a non-resident student.

STATUTE: SECTION 54.052(d) An individual who is 18 years of age or under or is a dependent and whose family has not resided in Texas for the 12-month period immediately preceding the date of registration shall be classified as a non-resident student, regardless of whether he has become the legal ward of residents of Texas or has been adopted by residents of Texas while he is attending an educational institution in Texas, or within a 12-month period before his attendance, or under circumstances indicating that the guardianship or adoption was for the purpose of obtaining status as a resident student.

STATUTE: SECTION 54.055 An individual who is 18 years of age or under or is a dependent and whose parents were formerly residents of Texas is entitled to pay the resident tuition fee following the parents' change of legal residence to another state, as long as the individual remains continuously enrolled in a regular session in a state-supported institution of higher education.

RESIDENCE OF A MINOR OR A DEPENDENT. The residence of a minor or dependent is usually that of the parent with whom the individual resides.

RESIDENCE OF A DEPENDENT 18 YEARS OF AGE OR OLDER. The residence of a dependent 18 or older is that of the parent who claims the individual as a dependent for federal income tax purposes both for the year for which the individual is enrolling and for the preceding tax year.

DIVORCE OF PARENTS. Upon divorce of parents, residency of a dependent is based on the residence of the parent who has custody at the time of enrollment or has claimed the dependent for federal income tax purposes both at the time of enrollment and for the tax year preceding enrollment. For dependents 18 or older, residency is determined by the residence of the parent who claims the student for federal income tax purposes both at the time of enrollment and for the tax year preceding 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.

INDIVIDUALS OVER 18

STATUTE: SECTION 54.052(e) An individual who is 18 years of age or over who has come from outside Texas and who is gainfully employed in Texas for a 12-month period immediately preceding registration in an educational institution shall be classified as a resident student as long as he continues to maintain a legal residence in Texas.

STATUTE: SECTION 54.052(f) An individual who is 18 years of age or over who resides out of the state or who has come from outside Texas and who registers in an educational institution before having resided in Texas for a 12-month period shall be classified as a non-resident student.

STATUTE: SECTION 54.052(g) An individual who would have been classified as a resident for the first 5 of the 6 years immediately preceding registration, but who resided in another state for all or part of the year immediately preceding registration, shall be classified as a resident student.

STATUTE: SECTION 54.054 A non-resident student classification is presumed to be correct as long as the residence of the individual in the state is primarily for the purpose of attending an educational institution. After residing in Texas for at least 12 months, a non-resident student may be reclassified as a resident student as provided in the rules and regulations adopted by the Texas Higher Education Coordinating Board. Any individual reclassified as a resident student is entitled to pay the tuition fee for a resident of Texas at any subsequent registration as long as he continues to maintain his legal residence in Texas.

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. 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.

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 until they submit the Residence Questionnaire and it is approved in writing by the director of admissions. 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. Accumulations of summer and other vacation periods do not satisfy this requirement. Reclassification to resident status after residing in the state for 12 months cannot be based solely upon the student's or the student's spouse's employment, registration to vote, registration of a motor vehicle and payment of personal property taxes thereon, or the securing of a Texas driver's license. 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. Material 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 full-time employment prior to enrolling in the institution, the fact of full-time employment and the nature of such employment while a student, purchase of a homestead with substantial down payment, 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.

LOSS OF RESIDENCE. Persons who have been attending Texas public institutions of higher education as residents and 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. The parent(s) of dependents must return to the state to live in order for the minor or the dependent to be considered a resident.

RECLASSIFICATION

APPLICATION FOR RECLASSIFICATION. 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 undergraduate Admissions Office. Students are notified in writing concerning official reclassification as a Texas resident.

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.

RECLASSIFICATION AS A RESIDENT. 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.

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 undergraduate 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 Schedule of Classes for specific information concerning the submission of non-resident tuition exemption forms.

MARRIED STUDENTS

STATUTE: SECTION 54.056 A student who is a resident of Texas who marries a non-resident is entitled to pay the resident tuition fee as long as the student does not adopt the legal residence of the spouse in another state.

Marriage of a Texas resident to a non-resident does not jeopardize the former's right to pay the resident tuition rate unless the resident has taken steps to claim the residence of his or her spouse. A non-resident who marries a resident must establish his or her own residency by meeting the standard requirements.

INTERNATIONAL STUDENTS

STATUTE: SECTION 54.057(a) An alien who is living in this country under a visa permitting permanent residence or who has filed with the proper federal immigration authorities a declaration of intention to become a citizen has the same privilege for qualifying for resident status for fee purposes under this Act as has a citizen of the United States.

ELIGIBLE ALIENS: (1) holders of A-1, A-2, G-1, G-2, G-3, G-4, K, or OP-1 visas; and (2) individuals classified by the INS as Refugees, Asylees, Parolees, Conditional Permanent Residents (holding I-551 cards which have not expired), and Temporary Residents (holding I-688 cards which have not expired).

STATUTE: SECTION 54.057(b) A non-immigrant alien who resides in this state in accordance with the Agreement between the Parties to the North Atlantic Treaty (NATO) Regarding the Status of Their Forces (4 U.S.T. 1792) and the spouse or children of such an alien are residents for tuition purposes under this code.

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

ECONOMIC DEVELOPMENT AND DIVERSIFICATION EMPLOYEES

An individual 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 her/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 that 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. The only companies whose employees qualify under this provision are those identified by the Texas Higher Education Coordinating Board as being eligible. Check with the Admissions Office.

BLIND, DEAF STUDENTS

STATUTE: SECTION 54.205, *Texas Education Code*, (S.B. 183) A person who is a "blind disabled" individual and who is eligible for the rehabilitation services of the Texas Commission for the Blind, and a "deaf person" whose sense of hearing is non-functioning, after all necessary medical treatment, surgery and use of hearing aids, for understanding normal conversation and who is eligible for the services of the Division of Vocational Rehabilitation of the Texas Education Agency, is exempt from tuition fees including all dues, fees, and enrollment charges whatsoever for which exemptions may be lawfully made, including fees for correspondence courses, general property deposit fees, and student services fees, but does not include fees or charge for lodging, board, or clothing.

A deaf or blind person who is a resident is entitled to a exemption from the payment or tuition fees at any institution of higher education utilizing public funds, if he presents:

(a) certification by the appropriate state vocational rehabilitation agency that he is a "blind person" or a "deaf person": and is a client of the agency, which certification shall be deemed conclusive;

(1) a high school diploma or its equivalent;

(2) proof of good moral character, which may be evidenced by a letter of recommendation from the principal of the high school attended by the deaf or blind individual or, if the high school no longer exists or if the principal cannot be located, a letter of recommendation from the individual's clergyman, a public official, or some other responsible person who knows the deaf or blind individual and is willing to attest to his good moral character; and

(3) proof that he meets all other entrance requirements of the institution.

FOSTER OR RESIDENTIAL CARE PERSONS

STATUTE: 54.211, *Texas Education Code*, (H.B. 1356) A student is exempt from the payment of tuition and fees authorized in this chapter if the student:

(a) was in foster care or other residential care under the conservatorship of the Department of Protective and Regulatory Services on or after the day preceding the student's 18th birthday; and

(b) enrolls in an institution of higher education as an undergraduate student not later than the third anniversary of the date the student was discharged from the foster or other residential care.

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

STATUTE: SECTION 54.058(a) Military personnel are classified as provided by this section.

STATUTE: SECTION 54.058(b) A person who is an officer, enlisted person, selectee, or draftee of the Army, Army Reserve, Army National Guard, Air National Guard, Air Force, Air Force Reserve, Navy, Navy Reserve, Marine Corps, Marine Corps Reserve, Coast Guard, or Coast Guard Reserve of the United States, who is assigned to duty in Texas and the spouse and children of such an officer, enlisted person, selectee, or draftee are entitled to register in a state institution of higher education by paying the tuition fee and other fees or charges required of Texas residents, without regard to the length of time the officer, enlisted person, selectee, or draftee has been assigned to duty or resided in the state. However, out-of-state Army National Guard or Air National Guard members attending training with Texas Army or Air National Guard units under National Guard Bureau regulations may not be exempted from non-resident tuition by virtue of that training status nor may out-of-state Army, Air Force, Navy, Marine Corps, or Coast Guard Reserves training with units in Texas under similar regulations be exempted from non-resident tuition by virtue of such training status. It is the intent of the legislature that those members of the Army or Air National Guard or other reserve forces mentioned above be exempted from the non-resident tuition fee and other fees and charges only when they become members of Texas units of the military organizations mentioned above.

STATUTE: SECTION 54.058(c) As long as they reside continuously in Texas, the spouse and children of a member of the Armed Forces of the United States who has been assigned to duty elsewhere immediately following assignment to duty in Texas are entitled to pay the tuition fees and other fees or charges provided for Texas residents.

STATUTE: SECTION 54.058(f) The spouse and children of a member of the Armed Forces of the United States who dies or is killed are entitled to pay the resident tuition fee if the wife and children become residents of Texas within 60 days of the date of death.

STATUTE: SECTION 54.058(g) If a member of the Armed Forces of the United States is stationed outside Texas and his spouse and children establish residence in Texas by residing in Texas and by filing with the Texas institution of higher education at which they plan to register a letter of intent to establish residence in Texas, the institution of higher education shall permit the spouse and children to pay the tuition, fees, and other charges provided for Texas residents without regard to length of time that they have resided within the State.

LEGAL RESIDENCE—GENERAL RULE. 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 which was in effect at the time of entering the service. Persons stationed in a state by the 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.

CHANGE OF PERMANENT ADDRESS WHILE IN THE SERVICE. It is possible for members of the military service or Public Health Service to abandon the domicile of original entry into the service and to select another, but to show establishment of a new domicile during the term of active service, there must be clear and unequivocal proof of such intent. An extended period of service alone is not sufficient. The purchase of residential property is not conclusive evidence unless coupled with other facts indicating an intent to put down roots

in the community and to reside there after termination of service in the military of Public Health Service. Evidence which will be considered in determining this requisite intent includes, but is not limited to, a substantial investment in a residence and the claiming of a homestead exemption thereon, registration to vote, and voting in local elections, 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 boxed 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 generally is given greater weight than a similar purchase made prior to such terminal period. Additionally, 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.

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.

RESIDENCE CLASSIFICATION UPON SEPARATION FROM MILITARY OR PUBLIC HEALTH SERVICE. GENERAL RULE: Persons who enroll in an institution of higher education following separation from military service must be classified as non-resident students unless they were legal residents of Texas at the time of entry into military service and have not relinquished that residence; they can prove that during military service they have, in fact, established *bona fide*, legal residence in Texas at least 12 months prior to enrollment; or they have resided in Texas other than as students for 12 months prior to enrollment and subsequent to discharge from service. This provision also applies to commissioned Public Health Service officers and their dependents. RECLASSIFICATION: The non-resident classification is a presumption, however, that can be overcome pursuant to the guidelines and standards for establishing Texas residence (see INDIVIDUALS OVER 18).

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.

OTHER FEDERAL EMPLOYEES. The privilege of paying resident tuition rates described in this section is restricted to persons in the military service and commissioned officers of the Public Health Service and is not extended to other federal employees or civilian employees of the military.

TEACHERS, PROFESSORS, AND THEIR DEPENDENTS

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 Undergraduate Admissions Office, **prior to the time of each enrollment**, a statement certifying employment from the director of personnel of the institution of higher education by which he or she is employed. This provision applies to eligible teachers and professors and their dependents no matter which Texas public institution of higher education they may attend.

TEACHING OR RESEARCH ASSISTANTS

Teaching or research assistants employed at least half-time for an academic year by any public institution of higher education 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. To be entitled to pay the resident tuition, eligible students must submit to the undergraduate Admissions Office, **prior to the time of each enrollment**, a verification form from the employing department certifying such employment.

SCHOLARSHIP RECIPIENTS

To qualify for exemption from paying non-resident tuition, a student must be awarded a competitive academic scholarship in the amount of $1,000 or more for the academic year, the summer session or both by an official scholarship committee or committees of the public institution of higher education they are attending.

SPECIAL PROGRAMS

ACADEMIC COMMON MARKET

UTEP is a participating member of 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 Office of Graduate Student Services.

CITIZENS OF MEXICO

A citizen of Mexico who registers for instruction offered by a general academic teaching institution in a county bordering 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 have been considered.

RESIDENT TUITION RATES FOR STUDENTS RESIDING IN COUNTIES OF NEW MEXICO ADJACENT TO TEXAS

The UT System has authorized UTEP to establish resident tuition rates for student residing in counties in New Mexico that are adjacent to Texas.

New Mexico State University, located in Dona Ana County which is adjacent to El Paso County, allows Texas residents to pay resident tuition rates for up to six semester credit hours.

UTEP has implemented a tuition policy for residents of counties in New Mexico that are adjacent to Texas that mirrors the policies at New Mexico State University. With current limitation, the New Mexico students at UTEP will pay tuition at Texas resident rates for up to six semester credit hours. Should the student enroll in more than six credit hours, the student is no longer eligible for the resident tuition rate. If New Mexico State University were to increase the number of hours for which Texas residents could pay the New Mexico resident tuition rate, UTEP would adjust its policy accordingly.

New Mexico students interested in applying for this resident tuition rate must contact the UTEP Undergraduate Admissions Office.

RESPONSIBILITIES

STUDENTS

OATH OF RESIDENCY

STATUTE: SECTION 54.0521(a) Before an individual may register at an institution of higher education paying tuition at the rate provided for residents, the individual must affirm under oath to the appropriate official at the institution that the individual is entitled to be classified as a resident for purposes of tuition.

STATUTE: SECTION 54.0521(b) If the institution later determines that the individual was not entitled to be classified as a resident at the time of the individual's registration, the individual shall, not later

than 30 days after the date the individual is notified of the determination, pay to the institution the amount the individual should have paid as a non-resident.

STATUTE: SECTION 54.0521(c) If the individual fails to make a timely payment as required by this section, the individual is not entitled to receive a transcript or to receive credit for courses taken during the time the individual was falsely registered as a resident student.

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.

INSTITUTIONS

OATH OF RESIDENCY. Each public institution is responsible for incorporating an oath of residency into its student application for admission. Further, each institution must file and maintain copies of substantiating documentation which will certify that the student classified as a resident has legal right to such classification as of the official census date of the semester or term.

AFFIRMATION OF RESIDENCE FOR RETURNING STUDENTS. When independent students classified as residents have been out of school for 12 months or more, an institution may continue the students' classification as residents upon receipt of affirmations from the students that they have not changed their state of residence since their last enrollment at that institution, provided the institution has documentation of residence status on file. When dependent students classified as residents have been out of school for 12 months or more, an institution may continue the students' classification as residents upon receipt of affirmations from the students that their parents or legal guardians have not changed their state of residence since the student's last enrollment at that institution, provided the institution has documentation of residence status on file.

REVIEW OF ENROLLMENT AND/OR REGISTRATION FORMS. Each public institution of higher education is responsible for reviewing enrollment and/or registration applications for errors, inconsistencies or misclassifications of residency status. Institutions should obtain written documentation to resolve any problems noted during the review of forms.

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.

STUDENT LIFE POLICIES AND PROCEDURES

Student Life Policies and Procedures

General Regulations

Authority

Detailed policies and procedures affecting student life are printed in the *Handbook of Operating Procedures (HOP)*—student section and are available electronically via the MUSIC system. The handbook supplements the rules and regulations of the Board of Regents and covers student conduct and discipline, use of University facilities, student organizations, educational records and student publications. Copies of the Student Handbook may be obtained from the Dean of Students' Office. The *Rules and Regulations* of the Board of Regents of The University of Texas System are also available in this office. The President has delegated responsibility for the administration of student discipline to the Dean of Students.

Student Conduct

While enrolled at the University, a student neither loses the rights nor escapes the responsibilities of citizenship. Any student who engages in conduct that is prohibited by the Board of Regents' *Rules and Regulations* or University rules, or by federal, state, or local law is subject to discipline whether such conduct takes place on or off campus or whether civil or criminal penalties are also imposed for such conduct. All students are expected and required to obey the law, to show respect for properly constituted authority and to observe correct standards of conduct.

The University of Texas at El Paso administers student discipline according to established procedures of due process. Procedures are defined and described in the *Rules and Regulations* of the Board of Regents, Part One, Chapter VI, Section 3, and in the *Handbook of Operating Procedures (HOP).*

Students should check with appropriate departments whose policy or regulation is of concern. If necessary, students need to refer to the rules as contained in the Regents' Rules and the *Handbook of Operating Procedures (HOP).* The Office of the Dean of Students can assist on this matter. This set of rules are available in the Office of the Dean of Students, 102 W. Union, and on reserve at the Library.

Scholastic Integrity

The University of Texas at El Paso prides itself on its standards of academic excellence. In all matters of intellectual pursuit, UTEP faculty and students must strive to achieve excellence based on the quality of work produced by the individual. In the classroom and in all other academic activities, students are expected to uphold the highest standards of academic integrity. Any form of scholastic dishonesty is an affront to the pursuit of knowledge and jeopardizes the quality of the degree awarded to all graduates of UTEP. It is imperative, therefore, that the members of this academic community understand the regulations pertaining to academic integrity and that all faculty insist on adherence to these standards.

Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts. Proven violations of the detailed regulations, as printed in the *Handbook of Operating Procedures (HOP)*, and available in the Office of the Dean of Students, may result in sanctions ranging from disciplinary probation, to failing grade on the work in question, to a failing grade in the course, to suspension or dismissal, among others.

Illegal Substances Policy

The use, possession, or sale of any illegal drugs or narcotics including any amount of marijuana on the campus of the University is a violation of *Regents' Rules and Regulations* and of University policies governing student conduct, as well as a violation of State Law. In addition to possible criminal prosecution, student offenders will be subject to disciplinary action by the University. The minimum disciplinary penalty which will be imposed is suspension from the University for a specified period of time and/or suspension of rights and privileges, although permanent expulsion from the University could result.

Policy on Disruptive Acts

The obstruction or disruption of any teaching, research, administrative, disciplinary, public service or other authorized activity on campus or on property owned or controlled by the University is prohibited and will subject the student or group of students to disciplinary action.

Solicitation

In general, solicitation is prohibited in any building, structure or facility of the UTEP campus. Certain university activities are permitted as defined in the HOP, Section 2-501. This handbook is available for review in the Office of the Dean of Students.

Policy on Hazing

Under the law, individuals or organizations engaging in hazing could be subject to fines and charged with a criminal offense.

According to the law, a person can commit a hazing offense not only by engaging in a hazing activity, but also by soliciting, directing, encouraging, aiding or attempting to aid another in hazing; by intentionally, knowingly or recklessly allowing hazing to occur; or by failing to report first-hand knowledge that a hazing incident is planned or has occurred in writing to the dean of students. The fact that a person consented to or acquiesced in a hazing activity is *not* a defense to prosecution for hazing under this law.

In an effort to encourage reporting of hazing incidents, the law grants immunity from civil or criminal liability to any person who reports a specific hazing event to the Dean of Students; and immunizes a person from participation in any judicial proceeding resulting from that report.

This law does not affect or in any way limit the right of the University to enforce its own rules against hazing. The University regards any form of hazing as a major violation, and any individual and/or registered student organization participating in such activities will be prosecuted.

The law defines hazing as any intentional, knowing, or reckless act, occurring on or off the campus of an educational institution, by one person alone or acting with others, directed against a student, that endangers the mental or physical health or safety of a student for the purpose of pledging, being initiated into, affiliating with, holding office in, or maintaining membership in any organization whose members are or include students at an educational institution. Hazing includes but is not limited to:

A. Any type of physical brutality, such as whipping, beating, striking, branding, electronic shocking, placing of a harmful substance on the body, or similar activity;

B. Any type of physical activity, such as sleep deprivation, exposure to the elements, confinement in a small space, calisthenics, or other activity that subjects the student to an unreasonable risk or harm or that adversely affects the mental or physical health or safety of the student;

C. Any activity involving consumption of food, liquid, alcoholic beverage, liquor, drug, or other substance which subjects the student to an unreasonable risk or harm or which adversely affects the mental or physical health of the student;

D. Any activity that intimidates or threatens the student with ostracism; that subjects the student to extreme mental stress, shame, or humiliation; or that adversely affects the mental health or dignity of the student or discourages the student from entering or remaining registered in an educational institution; or that may reasonably be expected to cause a student to leave the organization or the institution rather than submit to acts described in this subsection;

E. Any activity that induces, causes, or requires the student to perform a duty or task which involves a violation of the Penal Code.

Other Prohibited Conduct

Computer usage violations, use of alcoholic beverages, dishonesty, gambling, defacing of property, endangering the health or safety of others, use of obscene and threatening language, altering of records, possession or use of firearms, failure to respond promptly to official notices, etc., will subject the student to disciplinary action.

Penalties Which May Result

Penalties which may be imposed by the Dean of Students in conjunction with the approved disciplinary procedures include the following: admonition, disciplinary probation, withholding of grades, withholding of official transcript or degree, restitution, failing grade, denial of degree, suspension and expulsion, or revocation of degree and withdrawal of diploma, other penalty as deemed appropriate under the circumstances. In addition, certain privileges may be withdrawn consistent with the severity of the offense and the rehabilitation of the student. These penalties may be imposed singularly or in any combination upon individuals, groups or organizations.

General Debts of Students or Organizations

The University is not responsible for any debts contracted by individual students or by student organizations. The University will not assume the role of collection agency for any organization, firm or individual to which students may owe money, nor will the University adjudicate disputes between students and creditors over the existence or amounts of debts.

Debts Owed To The University

No student may refuse to pay or fail to pay a debt owed to the University. In the event of non-payment of debts owed to the University one or more of the following may be taken by the University:

a. bar against registration,
b. withholding of the student's grades and official transcripts,
c. withholding of a degree to which the student might otherwise be entitled
d. other penalties and actions authorized by law.

Bad Checks

A student who gives the University a check, draft or order which is not subsequently honored and the fault is not that of the bank, and who does not pay the University the amount due within five class days after the receipt of written notice that the bank has refused payment, may be subject to disciplinary action. A student who pays tuition and fees with a bad check, draft or order, the fault not being that of the bank, may be withdrawn from the University for nonpayment of tuition and fees if the student fails to pay the University the amount due within five class days after receiving written notice.

Immunization Requirement

In order to protect the health of the University community, all students are required to submit proof of immunization, or to be immunized, for Tetanus-Diphtheria, Measles, Mumps, and Rubella. Persons born after 1957 are encouraged to have an MMR booster to dispel any uncertainty about immunity to more than one of these diseases. In addition, international students must demonstrate clearance from Tuberculosis.

In accordance with State law, the following immunizations are required for all students enrolled in health related courses which will involve direct patient contact in medical or dental care facilities or who come in contact with human biological fluids or tissue.* Students for whom these immunizations are not required are strongly urged to obtain them for their own protection.

- **Measles**: proof of two doses of measles vaccine administered on or after the first birthday and at least 30 days apart or proof of immunity;
- **Mumps**: proof of one dose of mumps vaccine administered on or after the first birthday or proof of immunity.
- **Rubella**: proof of one dose administered on or after the first birthday or proof of immunity;
- **Tetanus/diphtheria**: proof of one "booster" dose of tetanus/diphtheria (within 10 years).
- **Hepatitis B virus (HBV)**: proof of serologic immunity to HBV or certification of immunization with a complete series of Hepatitis B vaccine. Students will be required to present a letter or other suitable written certification.

* **Note:** Certain exemptions are allowed from the immunization requirement; students should contact the Admissions Office or the University Health Service for information.

Students enrolled at UT El Paso will assume the full cost of the HBV. All other immunization listed above are free of charge.

Students may obtain information regarding the consequences of out dated immunizations for certain diseases; the age groups most vulnerable to these vaccine preventable diseases; and local providers of immunizations services from the University Health Service.

A form on which the required immunizations can be documented is available from the Admissions Office or the University Health Service. Since most secondary schools are required by law to maintain similar records, a copy of the high school immunization record may be submitted.

The University Health Service is responsible for maintaining a record of those students who comply with these requirements and may recommend the placement of an administrative hold on records if they have not been met. The Health Service provides the required immunizations free of charge, with the exception of X-ray screening for Tuberculosis for which there is a modest charge. The HB vaccine is also available for a nominal charge, for students enrolled in medical-related programs.

Policy on AIDS, HIV, and Hepatitis B Infection

The University of Texas at El Paso recognizes Acquired Immune Deficiency Syndrome (AIDS), Human Immunodeficiency Virus (HIV), and Hepatitis B Virus (HBV) as serious public health threats and is committed to encouraging an informed and educated response to issues and questions concerning AIDS, HIV, and HBV. In furtherance of its commitment, UTEP has adopted a policy and procedural steps to protect both the rights and well-being of those students, employees, and patients who may be infected with HIV or HBV as well as to prevent the spread of infection. No individual with HIV or HBV infection will be discriminated against in employment, admission to academic programs, health benefits, or access to facilities. Students with HIV or HBV infection may attend all classes without restriction, as long as they are physically and mentally able to participate and perform assigned work and pose no health risks to others. All information regarding the medical status of UTEP, faculty, staff, and students is confidential.

A complete copy of the "AIDS, HIV and Hepatitis B Infection" policy can be found in the institutional *Handbook of Operating Procedures (HOP)* available in the Dean of Students Office, the Library, and the University Health Service. This policy is applicable to all students of UTEP as they pursue their academic (and clinical) endeavors. An educational pamphlet on HIV infection developed by the U.S. Department of Health and Human Services and the Public Health Service will be made available to all students from the University Health Service.

Student Right-to-Know and Campus Security Act

In compliance with the Student Right-to-Know and Campus Security Act (the Act) 20 U.S.C. Sections 1092(a), (e) and (f), as amended, The University of Texas at El Paso collects specified information on campus crime statistics, campus security policies, and institutional completion or graduation rates.

Pursuant to the federal law, alleged victims of violent crime are entitled to know the results of campus student disciplinary proceedings concerning the alleged perpetrators.

UTEP will make timely reports to the campus community on crimes considered to be a threat to students and employees and reported to campus police or local police agencies.

Every September, UTEP will publish and distribute an annual report of campus security policies and crime statistics to all current students and employees; provide copies of the report to applicants for enrollment or employment upon request; and submit a copy of the report to the Secretary of Education upon request. The annual

campus crime statistics report will reference crimes which occur on property owned or controlled by UTEP and may be supplemented by listing crimes which occur off of the campus in buildings or on property owned or controlled by student organizations that are registered by the institution when such statistics are available from local police departments.

UTEP will publish in the annual security report, its policy regarding sex-related offenses, including sexual assault prevention programs, education programs to promote awareness of sex offenses, administrative disciplinary procedures and sanctions for offenders, and counseling and student services for victims.

UTEP will annually calculate and disclose institutional completion or graduation rates for undergraduate students to all prospective and current students. (The federal requirement for calculation of a completion or graduation rate applies only to institutions of higher education that admit undergraduate students who are enrolling for the first time at an institution of higher education and have not enrolled previously at any other institution of higher education.)

Prior to the offer of athletically-related student aid to a potential student athlete, UTEP will provide certain information on graduation rates specified by the Act to the prospective student and to the student's parents, guidance counselor and coach.

STUDENT GRIEVANCE PROCEDURES

Grade Appeals

A student may challenge his/ her grade as determined by a member of the faculty of the University during or within one year after the end of any credit course, qualifying or comprehensive examination, for which the student has been enrolled. A challenge to a grade may be pursued only on the basis of: malice, bias, arbitrary or capricious grade determination, or impermissible discrimination. In no event shall a challenge be pursued on the basis of the standards employed in setting grades, so long as those standards are employed impartially.

The student should first attempt to resolve the question through consultation with the faculty member who assigned the grade. The student should then attempt to resolve the question through consultation with the administrator(s) to whom the faculty member reports. Having failed to resolve the matter after consultation with both the faculty member and her/his supervisors, the student may consult with and/or file a challenge with the Chairperson of the Student Welfare and Grievance Committee. Contact the Dean of Students for specific information.

Non-Academic Grievances

Non-academic grievances of policies and procedures of university departments, related to matters other than discrimination, such as the application or interpretation of student policies must be initiated by making an effort to resolve the matter with the individual involved in the interpretation or decision. If the matter is not resolved, it must be submitted in writing to the appropriate director, chair, or department head within 10 working days of the questioned decision or interpretation. Grievances not satisfactorily resolved within 10 working days of that appeal may then be submitted to the appropriate Vice President. Disputes not satisfactorily resolved within 15 working days at this level may finally be appealed to the President.

DISCRIMINATION COMPLAINTS

Complaints regarding discrimination should be reported to the University's Equal Opportunity/Affirmative Action Officer. The University has various policies prohibiting discrimination which can be found in the *Handbook of Operating Procedures*. Questions regarding applicable policies should be addressed to the University's Equal Opportunity/Affirmative Action Officer, Administration Building, Room 200, or at (915) 747-5662.

STUDENT EDUCATIONAL RECORDS

FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT (FERPA)

The *Family Educational Rights and Privacy Act (FERPA)*, 20 U.S.C. S1232g, and the *Texas Open Records Act*, *Texas Government Code* S552.001 et seq., are respectively a federal and state law that provide for the review and disclosure of student educational records. In accordance with these laws the University has adopted the following policy. Individuals are informed of their rights under these laws through this policy which is included in the University *Handbook of Operating Procedures*, the *Undergraduate Studies Catalog*, and the *Graduate Studies Catalog*. The catalog will be made available for inspection through the Dean of Students' Office and HOPs are available in the University Library and most administrative offices.

The University will not permit access to or the release of personally identifiable information contained in student education records without the written consent of the student to any party, except as follows:

(1) to appropriate university officials who require access to educational records in order to perform their legitimate educational duties;

(2) to officials of other schools in which the student seeks or intends to enroll, upon request of these officials, and upon the condition that the student be notified and receive a copy of the record if desired;

(3) to federal, state, or local officials or agencies authorized by law;

(4) in connection with a student's application for, or receipt of, financial aid;

(5) to accrediting organizations or organizations conducting educational studies, provided that these organizations do not release personally identifiable data and destroy such data when it is no longer needed for the purpose it was obtained;

(6) to the parents of a dependent student as defined in section 152 of the *Internal Revenue Code of 1954*, provided a reasonable effort is made to notify the student in advance;

(7) in compliance with a judicial order or subpoena, provided a reasonable effort is made to notify the student in advance unless such subpoena specifically directs the institution not to disclose the existence of a subpoena;

(8) in a emergency situation if the information is necessary to protect the health or safety of the students of other persons; or

(9) to an alleged victim of any crime of violence, the results of the alleged perpetrator's disciplinary proceeding may be released.

The University will release information in student education records to appropriate University officials as indicated in (1) above when such records are needed by administrators, faculty, or staff in furtherance of the educational or business purposes of the student or University.

A record of requests for disclosure and such disclosure of personally identifiable information from student education records shall be maintained for each student by the Admissions Office, Office of Graduate Student Services, Office of the Registrar, office of the student's academic dean, and the office of the student's departmental major, and will also be made available for inspection pursuant to this policy. If the institution discovers that a third party who has received student records from the institution has released or failed to destroy such records in violation of this policy, it will prohibit access to educational records for five (5) years. Respective records no longer subject to audit nor presently under request for access may be purged according to regular schedules.

DIRECTORY INFORMATION

At its discretion, the University may release Directory Information which shall include:

(1) name, address, telephone number
(2) date and place of birth
(3) major field of study
(4) participation in officially recognized activities and sports
(5) dates of attendance
(6) most recent previous educational institution attended
(7) classification
(8) degrees and awards received
(9) date of graduation
(10) physical factors (height and weight) of athletes
(11) class schedule

A student may withhold Directory Information by notifying the Records Office in writing during the first 12 days of class of a fall or

spring semester, or the first 6 class days of a summer semester. A student who wishes to withhold such information should complete a Restriction of Release of Directory Information form with the Records Office. Request for non-disclosure will be honored thereafter by the institution until such time when the student directs the Records Office to remove the restriction. The University may disclose directory information concerning a student who is no longer in attendance.

A student who elects to withhold Directory Information will restrict its release for use in such activities as the annual Student Directory, off-campus mailing listings, enrollment verifications for off-campus parties, and access to personal records on the campus-wide Kiosk system.

A student who elects to withhold Directory Information may not receive this same information on the telephone. A student wishing to obtain this information must come to the Records Office.

ACCESS TO FILE

Upon written request, the University shall provide a student with access to his or her educational records. The University's Vice President for Finance and Administration has been designated by the institution to coordinate the inspection and review procedures for student education records, which include admissions files, academic files, and financial files. Students wishing to review their education records must make written requests to the Vice President for Finance and Administration listing the item or items of interest. Education records covered by the Act will be made available within 45 days of the request.

Documentation submitted in support of an application for admission is part of the student's official file and cannot be returned or forwarded to a third party.

A list of education records and those officials responsible for the records shall be maintained at the Office of the Vice President for Finance and Administration. This list includes:

A. Academic Records
   - Admissions Office: Director
   - Office of Graduate Student Services: Director
   - Office of the Registrar: Registrar
   - College, Division, Department and Faculty Offices

B. Student Affairs Records
   - University Counseling Services: Director
   - Student Activities Center: Director
   - Student Services: Dean of Students

C. Financial Records
   - Business Office: Vice President for Finance and Administration
   - Financial Aid Office: Director of Financial Aid

Educational records do not include:

(1) financial records of the student's parents or guardian;
(2) confidential letters of recommendation which were placed in the educational records of a student prior to January 1, 1975;
(3) records of instructional, administrative, and educational personnel which are kept in the sole possession of the maker and are not accessible or revealed to any other individual except a temporary substitute for the maker;
(4) records of law enforcement units;
(5) employment records related exclusively to an individual's employment capacity;
(6) medical and psychological records;
(7) thesis or research papers; or
(8) records that only contain information about an individual after the individual is no longer a student at the institution.

CHALLENGE TO RECORD

Students may challenge the accuracy of their education records. Students who believe that their education records contain information that is inaccurate or misleading, or is otherwise in violation of their privacy may discuss their problems informally with the official responsible for the records. If agreement is reached with respect to the student's request, the appropriate records will be amended. If not, the student will be notified within a reasonable period of time that the records will not be amended, and they will be informed by the official responsible for the records of their right to a formal hearing.

Student requests for a formal hearing must be made in writing to the Vice President for Finance and Administration who, within a reasonable period of time after receiving such requests, will inform students of the date, place and the time of the hearing. Students may present evidence relevant to the issues raised and may be assisted or represented at the hearings by one or more persons of their choice, including attorneys, at the student's expense. The hearing officer that will adjudicate such challenges will be appointed by the Vice President for Finance and Administration in non-academic matters and by the Vice President for Academic Affairs in academic matters.

Decisions of the hearing officer will be final, will be based solely on the evidence presented at the hearing, will consist of the written statements summarizing the evidence and stating the reasons for the decisions, and will be delivered to all parties concerned.

The education records will be corrected or amended in accordance with the decision of the hearing officer, if the decision is in favor of the student. If the decision is unsatisfactory to the student, the student may place with the education records statements commenting on the information in the records or statements setting forth any reasons for disagreeing with the decision of the hearing officer, or both.

The statements will be placed in the education records, maintained as part of the student's records, and released whenever the records in question are disclosed.

Students who believe that the adjudications of their challenges were unfair or not in keeping with the provisions of the Act may request in writing, assistance from the President of the University.

COPIES

Students may have copies made of their educational records and this policy. These copies will be made at the student's expense at rates authorized in the *Texas Open Records Act* except that official transcripts will be $5.00. Official copies of academic records or transcripts will not be released for students who have a delinquent financial obligation or financial "hold" at the University.

COMPLAINTS

Complaints regarding alleged failures to comply with the provisions of the FERPA may be submitted in writing to the Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Avenue SW, Washington, D.C. 20202-4605.

FACILITIES AND STUDENT SERVICES

Academic and Research Facilities

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, 98 hours a week. It houses over one million books and government publications, as well as over one million microforms. Subscriptions are maintained to 2,412 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 (LUIS). This catalog allows users to conduct searches by author, title, subject and key word. It is accessible from terminals on all floors of the library, campus offices and home. In addition, the Library LAN (Local Area Network) provides access to over 30 databases in all major areas of study at the University. These data bases 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 also 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 check-out services, makes reserve materials available and provides inter-library loan services. The CPM (Current Periodicals and Microforms) Department houses journals and newspapers that are less than two years old, newspapers and microform collections.

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.

The **Information and Telecommunication Services Department (ITSD)** offers UTEP students a vast assortment of computer-related facilities and services. ITSD maintains two student computer labs on campus, the Library Technology Center (LTC) and Bell Hall Technology Center (BHTC). Both of these locations provide students with access to PC and Macintosh computers, a variety of popular software titles, printing facilities and high-resolution scanners. A library of audio/visual materials and the necessary viewing equipment are also available. Frequent training sessions and a capable staff bring expert assistance directly to the students.

ITSD has vastly expanded the University's Internet capabilities. A new mail server has brought user-friendly, easy-access electronic mail to the entire campus. Netscape, Gopher, FTP, and other Internet clients offer users complete access to a wide variety of Internet resources. All of these systems are available to UTEP students at both of ITSD's computer lab locations. Users needing assistance may call the HELP Desk at x4357 (747-5257 *from off-campus*), or may explore the available offerings at ITSD's World Wide WEB sites (http://www.utep.edu/~itsd).

ITSD also maintains an IBM ES9000 mainframe computer system, and a host of UNIX and Novell file and compute servers. With all of these services and facilities, linked together with an FDDI high-speed data networking backbone, ITSD is preparing the University community for the arrival of the 21st century.

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.

The **Materials Research Center of Excellence (MRCE)** is supported by the National Science Foundation under its Minority Research Centers of Excellence program. Faculty and students in the MRCE conduct research on the synthesis and processing of materials including advanced, optical, and semiconducting materials. A major goal of MRCE 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.

The **Materials Research Institute** administers UTEP's multi-disciplinary 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.

Through manufacturing related research, outreach, and education, the **Institute for Manufacturing and Materials Management** (IM^3), brings University-based research and technology to the plant floors of manufacturers in El Paso, Cuidad Juárez, and Las Cruces. IM^3's manufacturing outreach programs assist area manufacturers in personnel development, technology utilization, product commercialization, and process and facility modernization. As a partner in the Texas Manufacturing Assistance Center, IM^3 helps manufacturers convert from defense-related to civilian production and utilize technology originally created for the defense industry.

By providing information and technical assistance to private and public sector entities, 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. It houses BorderBase, an innovative, on-line computer network that is the definitive source for U.S. -Mexico border information.

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. Juárez 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.

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.

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.

The **Laboratory for Environmental Biology,** a component of UTEP's Centennial Museum, is the major research and teaching support unit for the field-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.

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.

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.

The **Center for Organizational Research** (COR) focuses on the use of human capital resources, resources that are critical to the effectiveness of any organization. COR provides research and practical experience in applied psychology, human resources management, and organizational development to graduate students. It also provides human resources and organizational development consulting services to the University and the El Paso region.

The **Centers for Entrepreneurial Development, Advancement, Research and Support** (CEDARS), in the College of Business Administration, offers small business management classes to UTEP Business Administration students and sponsors a business plan writing laboratory that is open to the larger University community. It also provides outreach to small businesses in the El Paso area through its Small Business Management Program, which gives UTEP students an opportunity to assist small businesses in their planning processes.

UTEP students have opportunities to work and learn in **computer and research laboratories** in colleges and departments across campus. In UTEP's instructional labs, students conduct scientific experiments, study modern languages using state-of-the-art audio visual equipment, conduct computer-networked discussions of the Western Cultural Heritage with their classmates and professors, work with sophisticated computer programming languages, and perform other tasks of relevance to their disciplines. Many students also have an opportunity to work in state-of-the-art research laboratories, including materials labs equipped with such instruments as an electron microprobe and an analytical transmission electron microscope, computer-integrated manufacturing and design labs, soil mechanics and failure analysis labs, and geophysics and seismic labs.

STUDENT SERVICES

The University of Texas at El Paso offers a wide array of support services for students to ensure that student needs, concerns, and interests are addressed.

Personal Living

Student On-Campus Housing is provided in the University's high-rise co-educational residence halls. All rooms are air-conditioned and equipped with a telephone, sink, desk, bed, and overhead storage. Laundry rooms, a fitness room, sundeck, music room, TV lounges, kitchen and storage rooms are available in the residence halls. Optional living environments include 24-hour quiet floors. Suites and private rooms may be selected, if available. Cable TV is available, if approved. The residence halls are conveniently located on campus adjacent to the Library, the Student Health Center, the Commons Dining Hall, and some recreational facilities.

The student family apartment complex consists of 60 units, each with two bedrooms, living room, kitchenette and full bathroom. All apartments are unfurnished except for a stove and refrigerator. Reservations are handled on a first-come, first-served basis, though full-time students are given priority.

Applications for admission to The University of Texas at El Paso and application for the residence halls or the student family apartments are separate transactions. A housing application will be mailed upon request when a student applies for admission to the University, or an application may be obtained from:

University Housing System
Kelly Hall #105
The University of Texas at El Paso
El Paso, TX 79968
(915) 747-5352

Food Services. A myriad of dining establishments can be found throughout the campus. The Union offers a full-service cafeteria along with delicious Italian cuisine from **Giuseppe's Pizzeria** and freshly made sandwiches from **Subs & Spuds**. The Faculty & Staff dining room and a sundries store are also found in the Union. The Miner Café, located at **The Commons**, is the primary dining facility for resident students as well as the University community at large. For banquets, meetings, and private parties, **University Catering** can provide fine dining services. For a coffee or quick snack between classes, **Snack Stop** kiosks are located at many of the colleges.

The University Bookstore, located on the first floor Union East, is responsible for having available for the student, required academic textbooks and supplies. The Bookstore also provides the University community a large variety of reference books, school and office supplies, computer software and accessories, calculators, emblematic clothing and gift items, commencement apparel, magazines, paperbacks, sundries, and convenience snacks. Other services include year round book buybacks, special book and software orders, commencement invitations, graduation rings, specialty plaques, computer hardware orders, and check cashing.

Health and Fitness

The Student Health Center offers confidential health care services and activities to all university students. The staff includes three physicians, a nurse practitioner, registered nurses, a medical technologist and a pharmacist. Most services are provided without charge, but there are minimal fees for laboratory tests and pharmacy services. Referrals outside the Health Center, including x-ray referrals, are at the student's own expense.

Student insurance is available and highly recommended for every student without coverage by some hospitalization policy. Information may be obtained by calling ECA Associates at (915) 533-9891, or the Health Center at (915) 747-5139.

Services of the Student Health Center include health promotion with emphasis on physical fitness, women's health issues and cholesterol-nutrition monitoring. Confidential HIV/AIDS testing and counseling are available on the second and fourth Wednesday of each month from 11:00 a.m. to 2:00 p.m. Student identification is NOT required or requested.

The Health Center facilitates compliance with the University's requirement that all students must submit proof of immunization, or be immunized, for Tetanus-Diphtheria, Measles, Mumps and Rubella by providing the required immunizations free of charge. In addition, the Health Center offers Tuberculosis screening free of charge.

A form on which the required immunizations can be documented is available from the undergraduate Admissions Office or the University Student Health Center. Since most secondary schools are required by law to maintain similar records, a copy of the high school immunization record may be submitted. Students not in compliance with the immunization requirement may be denied registration.

Major emergencies are referred to adjacent hospitals, and University police are available to administer first aid. Minor illness, injury or health concerns are treated by the Health Center's professional staff.

The Health Center is located at 2001 Wiggins, directly across from the University Library. Hours of service are Monday through Friday from 7:30 a.m. to 4:30 p.m. The Center is closed on Friday between noon and 1:00 p.m. For additional information, please call the Center at (915) 747-5624.

The Recreational Sports Department provides an opportunity for each member of the University community to voluntarily participate in a wide variety of sports and recreational activities.

The Intramural Sports Program includes approximately 40 activities for men and women. There are team sports such as flag football, volleyball, basketball, and indoor soccer, as well as individual and dual sports such as tennis, handball, racquetball, golf, and volleyball. Many activities include "Co-rec" leagues for teams comprised of equal numbers of men and women participants. Activity schedules are printed each semester and are available at Memorial Gym Room 103, or at the Union Recreational Center.

Drop-in Recreation involves leisure time use of recreational facilities for basketball, volleyball, indoor racquetball, outdoor racquetball, and tennis. Sports equipment is also available for checkouts. Reservations for UTEP's playing fields must be made by registered student organizations in Memorial Gym Room 103. Racquetball reservations must be made on a daily basis Monday through Friday between the hours of 8:00 a.m. and 3:00 p.m. with a playing time between 3:00 p.m. and 9:00 p.m. Validated UTEP ID must be carried at all times.

Recreational extramural/team sports are open to all students. Many teams compete against other schools, while others exist for instruction and recreation. Current clubs include fencing, men's soccer, women's soccer, rugby, wrestling and waterpolo.

The Department maintains an Outdoor Equipment Center which offers skiing, camping, backpacking, and water sports equipment for minimal rental fees. For further information, please call 747-5103 or come by Memorial Gym Room 103.

Personal Support

University Counseling Services provides a variety of psychological support programs to the campus. The core of these programs is the individual, couple and group counseling offered to currently enrolled UTEP students.

Career counseling is available to assist students with questions relating to choice of academic major and future career goals. Career information is also available to both UTEP students and individuals from the community using the DISCOVER computer program.

Personal counseling is available for a limited number of sessions to help students overcome personal problems that are interfering with their academic progress. Counseling for persons experiencing problems with alcohol or drugs can also be arranged through this office. Psychological testing and psychiatric consultation are available to students as an adjunct to individual counseling. If it is determined that a student requires services that are beyond the scope of the University Counseling Service, the counselor can then assist the individual to find appropriate services in the community.

Professional staff members also make presentations to small groups and give seminars and classes on topics of interest to the campus community such as stress management, career choice and assertiveness. UCS psychologists and counselors are available for consultation with students, faculty and staff regarding student problems and the needs of individual students.

The University Counseling Services office is located in the Union, 104 West, and is open weekdays from 8:00 a.m. to 5:00 p.m.

The Women's Resource Center is designed to provide services especially focused on the changing needs of women students today as they balance their various roles. It provides a one-stop information center about resources on campus and in the community and, when appropriate, serves as an advocate for students in order to help assure fair treatment and student representation.

The Center sponsors workshops, films and other programs about questions of interest related to women, sometimes in cooperation with other departments or programs on campus. Also available are a film and audio library and a conference room for individual study or small meetings. Small emergency loans with a 10% flat interest rate are offered. The services of the Women's Resource Center are available to all currently enrolled students or individuals contemplating enrolling at the University.

Child Care is available for children of all students, faculty and staff of the University. The **University Child Care Center** is located at 1825 Hawthorne and is managed and operated by Sara Care Child Care Center, Inc. Hours are Monday through Thursday from 7:15 a.m. to 9:00 p.m. Hours for academic year Fridays and summer hours are 7:15 a.m. to 6:00 p.m. Children aged six months to 12 years are accepted, depending on availability of space. Age appropriate early childhood developmental programs are offered in the curriculum. The University Child Care Center is licensed by the Texas Department of Human Services and is an approved vendor for Child Care Management Services. Financial assistance is available for qualifying parents, through Child Care Management Services.

Academic Services

The Academic Development Center, located on the second floor of the Education Building, was instituted in 1989 as a part of UTEP's implementation of the Texas Academic Skills Program. The Center offers diagnostic testing in reading, writing, and mathematics to determine students' readiness for college-level coursework. For students who are either unprepared to pass the Texas Academic Skills Program test or, regardless of TASP status, are unprepared for college-level courses, the Center offers developmental courses in reading, writing, and mathematics. Students placed into these courses are required to complete them successfully before taking other courses in the same subject. The courses are offered on a pass/fail basis.

The Academic Development Center's instructional staff and peer tutors work with nearly 3,000 students each year. Four computer laboratories equipped with 30 PS/2s each are available for use by students in diagnostic testing, coursework, and individual tutoring and study.

Disabled Student Services attempts to enable the disabled members of the student body, both permanently and temporarily disabled, to have an equal opportunity to pursue their education. Assistance is provided by arranging for note takers, sign language interpreters, and readers, as well as loaning of audio recording equipment and other specialized equipment. The office also serves as a liaison to faculty, arranging, for example, to have classes moved from inaccessible to accessible locations.

Office of International Programs serves as a source of information and assistance for international students and scholars at UTEP and for U.S. students considering work, study or travel abroad. The

office provides international students with financial, immigration, cross-cultural and personal advice and assistance. International scholars on short-term teaching or research programs also receive assistance with immigration matters. For U.S. students, the office provides counseling on Study Abroad opportunities, and offers the Study Abroad Scholarship.

The Office of the Registrar is responsible for the maintenance of student records, all registration transactions, and the distribution of grade mailers. This office also processes enrollment certifications, transcript requests, graduation applications and diplomas, and student identification cards as well as publishing the *Class Schedule* and the undergraduate and graduate catalogs; in addition to scheduling all academic and non-academic activities into instructional classrooms and buildings.

The Department of Student Assessment and Testing provides a wide array of testing services for admissions, professional certification, course placement, and credit by examination purposes. Institutional administrations of the Test of English as a Foreign Language (TOEFL) are offered throughout the year; scores may be considered only by UTEP. Additionally, the department conducts research and evaluation activities aimed at identifying and measuring the effects of the university experience on our students.

The Tutoring and Learning Center helps students improve general competency and performance in their academic subjects through a variety of non-credit programs, including TASP preparation, that are free to students enrolled at the University. The office is located in the UTEP Library, 3rd Floor. For further details refer to the Academic Support section in this catalog.

Veterans Affairs is a part of the Office of the Registrar and serves the needs of students who are veterans or dependents of veterans. The office is responsible for creating and maintaining records which are used in support of certification of a student's status to the Veterans Administration.

Applicants for admission who are entitled to receive veterans benefits during University enrollment are encouraged to contact the Veterans Affairs office as early as possible in the process, to obtain information on current regulations and to initiate appropriate paperwork.

Graduate students must be admitted into a program in order to receive Veterans benefits.

Career and Professional Development Services

Career Services, also known as **The Career Connection**, provides assistance to students in finding permanent employment after graduation and part-time employment while enrolled.

Career Services sponsors CIRCUS (Career Information Resource Center for UTEP Students), a resource library that houses information on employers, government agencies, school districts, graduate schools, career choices, internships, and job search preparation in print and on videotape. Materials of interest to women, minorities, and disabled students are included. Many publications on current job trends and careers are available. The computerized career guidance program GIS is also located in CIRCUS (The Union 114 West, 747-5640).

Career Services also provides career counseling and advises students on resume preparation, interviewing skills and future job opportunities. The office arranges interviews with agencies, organizations, or schools and counsels students on the best approach to identify and contact prospective employers. The office provides forms, applications and literature necessary for interviews.

JOBTRAK, a database listing of nation-wide positions available in business and industry for all majors, is housed in Career Services, as is the Resume Review Drop-In Clinic, to which students can bring resumes for review and assistance on a drop-in basis.

For permanent employment, companies from all over the United States schedule interviews during the months of October, November, December, February, March and April. The office works with hundreds of applicants and thousands of job opportunities each year by arranging for on-campus interviews and referring resumes. This service can save time, minimize effort and, in the final analysis, help students plan for the future. After having attended a Professional Employment Orientation, seniors and alumni can participate in on-campus interviewing for the purpose of finding permanent employment in their chosen field. Seniors interested in permanent employment after graduation should register at least a full year prior to receiving their degree.

Part-time job opportunities are posted on the bulletin board outside the office. After filling out the proper application, students are referred to the board to check on jobs and obtain a referral from the secretary. The requirements for consideration for part-time campus employment are met with an application along with proof of enrollment.

The University has a Cooperative Education Program (CO-OP) which has been established with industries and government agencies. Students who are in the program usually attend school for a semester and then serve on a work assignment for a semester, alternating the school and work phase until graduation. Summers are considered a semester for CO-OP purposes. A parallel program, school part of the day and work part of the day, is available.

Internships in both technical and non-technical positions are offered. The Career Services utilizes the latest in computer and interactive technology to provide students with the broadest access possible to career opportunities. Career Services is located in the Union 103 West.

The Division of Professional and Continuing Education serves three purposes:

1. To offer non-credit short courses and programs to answer community needs for education or training outside the regular channels of instruction. Although college credit is not granted for such work, certificates are issued from the University upon completion. Continuing Education Units are awarded for courses meeting specific requirements.
2. To coordinate and administer conferences, seminars, symposia, special educational programs, etc., initiated by academic units, faculty and other organizations primarily for non-university personnel and agencies. Activities may result in the award of academic credit or Continuing Education Units for programs meeting specified requirements.
3. To conduct intensive professional continuing education for executives, professionals, and their staff members through a variety of workshops, seminars, conferences, and short courses. These are designed to provide updating and new skills development and may be directed toward individual growth, organizational effectiveness, or licensing/certification needs.

Sessions vary in length and are taught by instructors selected for their expertise in subject area, related work experience, and demonstrated ability to have successfully conducted similar sessions. They may be college or university faculty members, practitioners from the community, or nationally and internationally recognized talent.

Many of the programs are available in Spanish, and most may be customized for a particular group. In-house presentations can be designed to meet special needs or situations, and may be held at the Division or on-site.

The English Language Institute is a program of the Division of Professional and Continuing Education. It serves the following purpose: To offer intensive English courses and programs designed to meet the needs of non-English speakers to pass the TOEFL, gain academic experience in higher education and utilize English for professional and personal purposes. Certificates are issued upon satisfactory completion.

The Division is committed to lifelong learning. It serves to link the community to the educational resources needed to grow or keep current and updated.

Extracurricular Activities

Discover what it means to be involved in the **Student Activities Center!** The Student Activities Center is a non-stop clearing house of information and resources for UTEP students involved, or wanting to become involved, in university activities. The Student Activities Center is where students go if they are wanting to get INVOLVED in leadership activities, community service, wellness programs or events, or student organizations; including fraternities, sororities, special interest clubs, honor societies, and professional and service organizations.

With the assistance of student leaders, the Student Activities Center coordinates UTEP's comprehensive **Leadership Development** program and the **University-wide Wellness** program. Whether it is the unique Summer Leadership Camp, the inspiring Emerging Leaders Program, the Hispanic Leadership Academy, the Women's Leadership Institute, the prestigious Advanced Leaders program, or a host of wellness progams and events, becoming actively involved in campus events and activities is one of the most important steps a student can take toward a rewarding college experience.

The **UTEP Wellness Program** offers services that are designated to reflect an overall wellness approach, including issues of social, physical, emotional, spiritual, intellectual and environmental well-being. A team of Student Wellness Advocates focus on the education of the community. These advocates are available to give presentations in the classroom, to organizations, or to any group requesting their services. Presentation topics cover a wide variety of issues, including AIDS, alcohol and drug issues, stress, and peer pressure.

The **Resource Library;** consisting of reading materials, audio and visual aids, contains information on student development, team- building, management, leadership, parliamentary procedure, student affairs graduate education programs, stress, alcohol and drugs, and dozens of other related topics. These are available for individual use at anytime.

As a student you can also get involved in community service. There are several unique programs available to you through the leadershop progam (interns) or as a student just wanting to serve your community. Make the time and explore Paydirt Pals (big/little program,) Rio Grande Habitat, Praxis, Humane Society, Small Businesss Association, Service for Senior Citizens, and many more.

The Student Activites Center challenges all incoming and currently enrolled students to "redefine education" by joining or creating at least one organization and actively participating in university activites. Redefine what it means to be a "UTEP student" by becoming MORE INVOLVED and "discovering leadership, wellnes, and many more opportunites in the Student Activites Center. The Student Activities Center and Wellness Program is located in the Union East Building, Room 203, or call (915) 747-5670.

Through active invovlement in **Student Organizations,** students benefit themselves as well as UTEP. After graduation from UTEP, employers will ask you several questions during employment interviews. Often you are asked to talk about your involvement in extracurricular activies. Make sure that you are able to answer the interviewer's questions. Get Involved!!

There are many different organizations at UTEP, each with different objectives. Take a moment to look at the different choices that are open to you. If you have a special interest that isn't already a focus of a student organization, you have the opportunity to create a new student organization. If you are interested in any of these organizations, do not hesitate to go by the Student Activities Center at 203 East Union or call 747-5670. You will be given the name, address and phone number of the organization's contact person. Also look for information booths of the different organizations during Student Orientation or throughout the semester. You can join a student organization at any time during the year: simply attend a meeting or call the Student Activities Center.

Social Fraternities and Sororities — The Greek organizations, as they are often called, offer their members the opportunity to participate in different social and community service events. Membership in social fraternities and sororities is by invitation after formal rush in the fall and spring semesters. During Rush Week prospective members have the opportunity to get acquainted with all of the different fraternities and sororities on campus.

Special Interest Organizations — This type of organization is formed by students sharing an extra-curricular interest. Special interest organizations participate in community service, recreational activities, and/or leadership activities.

Professional Organizations — Professional organizations and professional fraternities allow students the opportunity to meet others with similar career goals. As with other types of organizations, there is room to learn and to develop leadership skills. Professional organizations are particularly important for networking, as you make contacts with people in your field of study in school and in the El Paso area.

Honor Societies — Honor societies are for those students who excel in their academic and extra-curricular involvement. In departmental honorary societies, students meet with the very best students of a particular major or field of study.

Service Organizations — Service organizations, as their name indicates, are dedicated to volunteerism and service within the El Paso and University community.

Religious Organizations — Religious organizations are formed by students of similar religious beliefs. However, organizations do not exclude students of other religions from membership. This type of organization usually sponsors different events such as religious retreats, Bible readings and community service projects.

Coordinating/Governing Organizations —These organizations are formed as coordinating bodies for student organizations that have a common interest. They serve as a liaison between the organizations and the University administration.

The Union Programs Office sponsors activities including the University film series, fine arts exhibits, comedy and variety acts, performing arts presentations, local, national and international speakers, and traditional campus-wide programs such as Homecoming and Spring Alive. These programs are generally offered free or for a minimal charge to students. Program selections are made by a committee composed of students. Students interested in serving this committee can apply at the Union Programs Office, Room 302, Union East, or call at 747-5481.

The Student Association is the official voice of the student body in the University decision making process. SA acts as the students' representative before the local, state and national governments on issues that affect the student population. Since its inception, SA has served to communicate student needs, desires, and demands to UTEP administrators, the Board of Regents, and the Texas Legislature. SA also serves to maintain a pleasant and exciting environment for student life. The range of activities of SA, both on and off campus is continually expanding as students increase their interest in the political process that affects their lives.

Each spring, all UTEP students are eligible to participate in the election of Student Association officers and the Student Senate. Student Government is modeled after the United States Federal Government with executive, legislative and judicial branches. The President, Vice President of Internal Affairs, and Vice President of External Affairs compose the Executive Branch which is responsible for the daily operations of the organization. The Legislative Branch consists of one Senator for each 100 students enrolled and is vested with all SA legislative powers, SA senate meetings are open to all students. Both the Executive and Legislative Branch are assisted in their many projects by student volunteers known as Legislative Assistants. The Judicial Branch is composed of three parts, the Supreme Court, the Traffic Court and the Student Advocates.

The University of Texas System Advisory Group is an addition to Student Association. The three UTSSAG delegates work on legislation that affects the entire UT System and is an advisory to the board of Regents on student issues.

Student Publications—All UTEP students with a GPA of at least 2.0 may serve as reporters, editors, photographers, or advertising salespersons for the University's student publications program. Those publications include: The Prospector, the campus newspaper; The Rio Grande Review, a literary magazine; and other publications sanctioned by the University, including a pilot Spanish-language

newspaper, El Minero. At The Prospector, students learn professional newspaper production techniques that eventually can be used to build up a resume or working portfolio for a journalism career. To insure freedom of expression, student publications are overseen by a duly elected Student Publications Board composed of UTEP faculty, staff and students. The Board works jointly with student editors and staff members. The Student Publication program at UTEP is anchored under the management supervision of the Chairperson, Department of Communication.

The UTEP Department of Intercollegiate Athletics—UTEP is an NCAA Division I school and is a member of the Western Athletic Conference. Sponsored sports are men's football, basketball, cross country, indoor track, outdoor track, golf and tennis and women's basketball, golf, tennis, rifle, volleyball, cross country, indoor track, outdoor track, and soccer; women's swimming will be added in 1998. Football is played in the 52,000-seat Sun Bowl Stadium, which is located on campus and nestled in the southern tip of the Rocky Mountains, and men's and women's basketball play in the 12,222-seat Special Events Center. Teams nationally ranked in recent years include men's basketball, golf, indoor and outdoor track and women's rifle.

Mission—The UTEP Department of Intercollegiate Athletics is committed to providing a regionally and nationally competitive athletics program as an integral part of the educational mission of the University. Programs sponsored shall be in compliance with the highest recognized standards of the institution and its athletics governing bodies. Intercollegiate athletics operates in harmony with the University's stated mission and is committed to the intellectual, cultural, physical and social development of student-athletes. In particular, the intercollegiate athletics program shall serve as an educational opportunity for student-athletes and as a focal point to bring the student body, faculty and community together. Opportunities for participation are provided without discrimination.

Cultural Life

Drama, music, the visual arts—all are available to UTEP students as participants and as audiences. Students may act in, work behind the scenes on, and attend plays produced in the University Playhouse and the Studio Theatre, located in the Fox Fine Arts Center, and in the Union Dinner Theatre. Selections include theatre classics, musicals, contemporary plays, children's theatre, bilingual theatre, and original playscripts, often written by UTEP students or faculty.

Music activities include over 100 student, faculty and guest artist recitals and concerts per year, most of which are free to the public. Students may join such groups as the University Symphony and Opera, the Ballet El Paso, the University Wind and Percussion Ensembles, Jazz Lab Bands, the University Jazz Singers, choirs and chamber groups.

Students of the visual arts have access to over 30 studios and equipment for sculpture, ceramics, printmaking, metalwork and graphic design. The work of students, faculty and outstanding regional and national artists is exhibited in two galleries in the Fox Fine Arts Building, as well as in the Union Gallery.

The El Paso Centennial Museum was built in 1936 with funds allocated by the Commission for the Texas Centennial Celebration. As the University's museum it serves students and the El Paso/Juárez communities. The mission of this natural and cultural history museum is to preserve, document, exhibit and educate about the Southwest and Mexico. Noteworthy collections pertaining to Geology, Anthropology, Archaeology, Paleontology, Ornithology and Mammalogy include rocks, crystals, minerals, pottery, stone tools, shell jewelry, baskets and fossil elephant remains. Basic museum intern and special project classes are offered to UTEP students. Temporary exhibits, lectures, gallery talks, youth classes, workshops for adults who work with youth, and volunteer activities are part of the museum's education program. Members of the Friends of the Museum Organization receive a 10% discount in the museum's shop, which features books and gifts concerning natural and cultural history. The Museum is free and open to the public during exhibit hours on Tuesday through Saturday, 10 a.m.-5 p.m., except on National and University holidays.

KTEP Public Radio—KTEP 88.5 FM Public Radio provides news, information, and music 19 hours per day for the University as well as Juárez, El Paso, and Southern New Mexico. UTEP students can work at the station either as interns or volunteers. KTEP is equipped with the latest in digital broadcast technology. KTEP began broadcasting in 1950 and was the first FM station in El Paso and one of the first in the Southwest. A monthly program guide is available by calling (915) 747-5152.

Texas Western Press is the 45 year old book publishing entity of the University of Texas at El Paso founded by internationally known typesetter and book designer, Carl Hertzog. Specializing in nonfiction books on the history and cultures of the Southwest, the eight to ten titles published each year also include art and photographic books and Native American studies. The annual books in print catalog features all hardback and paperback books and the popular Southwestern Studies Series, now publishing No. 102, produced by the Press. The Press also sponsors the annual C.L. Sonnichsen Book Award competition. The award-winning books are sold nationally and internationally through chain bookstores, independent booksellers and the University Bookstore. Texas Western Press is located in the Hertzog Building, on the corner of Rim and Wiggins Road.

ACADEMIC SUPPORT

Academic Support

The Tutoring and Learning Center
300 Library
747-5366

DIRECTOR: Gladys R. Shaw

Academic success for 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.

The center offers the following:

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.

Computer Assisted Instruction in math, reading, writing, standardized test preparation and other areas. Open to all students on a walk-in basis, but priority is given to TASP-affected students referred by the Advising Center.

Individualized Assistance with Learning and Study Problems. Available to all students.

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

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, et. These are available on a walk-in basis in the Learning Assistance Lab in the center.

Graduate Student Services. In addition to the services listed above, the center offers the following services especially for graduate students:

Standardized Test Preparation Workshops for the GRE, GMAT and EXCET are made available each long semester. Twelve hours of instruction are provided that include test-taking strategies plus work on the specific sections of the exams. UTEP students may sign up in the center. Non-enrolled students must sign up in the Department of Continuing Education for a fee.

Computer Assisted Instruction programs for the GRE and the GMAT are available for individual use in the center. UTEP students may enroll at the center. Non-enrolled students must sign up with the Department of Continuing Education and pay a fee.

Thesis Writing Workshop is offered each long semester. This workshop provides four hours of instruction and is free to UTEP students who may sign up in the center. Non-enrolled students must sign up in the Department of Continuing Education and pay fee.

College of Business Administration

Accounting
Business Administration
Economics and Finance
Information and Decision Sciences
Marketing and Management

Dr. Frank Hoy, Dean
Dr. James Holcomb, Associate Dean
Dr. Lee Schmidt, Associate Dean

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

The College of Business Administration

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 the widest possible access to quality higher education to allow our students to be competitive on a local, regional, national, and international level. Therefore, it is the goal of the College to provide:

- Broad-based programs which give students the background for entry into, and advancement in, professional and managerial positions, and for lifelong 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, 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 business community of the region. Many individuals engaged in business in the community enroll in selected courses in order to get specific skills or to broaden their knowledge. In addition, the faculty of the College of Business Administration participates in the Division of Continuing and Professional Education, which offers a wide variety of non-credit courses including programs for the business practitioner. CEDARS (Centers for Entrepreneurial Development, Advancement, Research, and Support), located in the College of Business Administration, through its 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 service. Their work as well as that of the 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 micro-computer 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 the Master of Science in Economics (MSEC). The BBA, MBA, and MAcc, and the BBA in Accounting are accredited by the American Assembly of Collegiate Schools of Business.

Enrollment in Graduate Courses in the College of Business Administration for Non-Business Graduate Students

Any graduate student who has not been admitted to the MBA, the MAcc, the Combined BBA/MAcc, or the MS in Economics programs **must** have written permission of the Graduate Advisor in the College of Business Administration in order to enroll in graduate courses offered by the College.

Accounting

260 Business Administration Building
(915) 747-5192

CHAIRPERSON: Gary J. Mann

GRADUATE FACULTY: Bhattacharya, Eason, Hoffmans, Mann, Mayne, Omundson, Putnam, Schmidt, Zimmermann, Zlatkovich

The mission of the Department of Accounting is to provide quality higher education to the citizens of El Paso and the surrounding region, prepare them to function effectively in society, and contribute to the quality of life in this community and region. The Department's goal is to provide a Master of Accountancy (MAcc) degree which enables career advancement in the accounting profession. The MAcc program, which may be entered after receiving a bachelor's degree or within the combined BBA/MAcc plan, permits students to tailor their curriculum to meet their career objectives, allowing specialization in taxation, managerial accounting, or financial accounting and auditing. The Department is AACSB accredited.

The following areas are included under Accounting.
Accounting
Business Law

MASTER OF ACCOUNTANCY PROGRAM (MAcc)

The MAcc program consists of a twelve-hour business core, an eighteen-hour accounting option, a three-hour communication requirement, and a three-hour approved graduate elective. A student must complete a minimum of thirty-six hours and defend his/her professional report.

REQUIREMENTS FOR ADMISSION TO THE MASTER OF ACCOUNTANCY PROGRAM

1. A Bachelor's degree from an accredited institution in the United States (or proof of equivalent training in a foreign institution).
2. General competency in quantitative skills.
3. A satisfactory score on the Graduate Management Admissions Test, the GMAT, of at least 450, and three out of five ("acceptable") or better on the analytical writing portion.
4. The GMAT score, plus 200 times the grade point average on all undergraduate and graduate level work previously completed must equal 1050 or more; or the GMAT score, plus 200 time the upper division and graduate level GPA must equal 1100 or more.
5. A grade point average of at least 2.7 (4.0 scale) on all undergraduate and graduate level work already completed.
6. Foreign students require a minimum TOEFL score of 600.

Conditional Admission:

1. Meet requirements 1, 2, and 3 above.
2. The GMAT score, plus 200 times the grade point average on all undergraduate and graduate work previously completed must equal 1000 or more; or the GMAT score, plus 200 times the upper division and graduate level GPA must equal 1050 or more.
3. Foreign students require a minimum TOEFL score of 550.

Students who are conditionally admitted must complete their first 12 hours in the field with no grade below a "B".

SPECIFIC REQUIREMENTS FOR THE MASTER OF ACCOUNTANCY DEGREE

All students must meet the **Pre-Master of Accountancy (Pre-MAcc) Requirements** and complete thirty-six credit hours of **Course of Study for the Master of Accountancy (MAcc)**.

Courses in **Pre-MAcc Requirements**, as described below, **may be waived** if, according to the Accounting Graduate Studies Committee, the student has the equivalent courses in previous undergraduate or graduate course work or the appropriate work experience. Waiver may also be given if the student can demonstrate proficiency through challenge examinations approved by the Committee.

Pre-Master of Accountancy Requirements

I. **Common Body of Knowledge** (24 semester hours)
[The course in parenthesis indicates the equivalent undergraduate course.]

3	ACCT 3501 (3309) or ACCT 3201, 3202	Financial Accounting
3	ECON 3504 or ECON 3203, 3204	Business Economics
3	QMB 3511 or QMB 3201, 3301 and MATH 3201	Quantitative Methods in Business
3	BLAW 3506 (3301)	Business Law and Ethics
3	MGMT 3511 (3303)	Organizational Management Seminar
3	CIS 3511 (3345)	Management Information Systems Theory and Practice
3	MKT 3503 (3300)	Marketing Systems
3	FIN 3505 (3310)	Financial Concepts and Analysis

II. **Professional Core** (18 semester hours)

3	ACCT 3320	Accounting Systems
3	ACCT 3321	Intermediate Accounting I
3	ACCT 3322	Intermediate Accounting II
3	ACCT 3323	Cost Accounting
3	ACCT 3327	Federal Income Tax - Individuals
3	ACCT 3404	Auditing Principles and Procedures

Course of Study for the Master of Accountancy (MAcc) (36 semester hours)

I. **Business Core Requirements**. (12 semester hours)
- 6 Approved business electives in international topics
- 3 MGMT 3525 (Taken last semester)
- 3 Approved graduate business electives

II. ***Accounting Major Option Requirements*** *(18 semester hours)*

(a) Tax Option
18- ACCT 3428*, 3522, nine hours of (ACCT 3520, 3521, 3525, 3526), 3597

(b) Financial Accounting/Auditing Option
18 - ACCT 3401*, 3423*, 3510, 3523, 3524, 3597

(c) Managerial Accounting Option
18 - ACCT 3421*, 3512, 3524, 3591, 3597 and three hours of approved graduate accounting elective

* Should be taken after being admitted to Graduate School. If already taken prior to admittance to Graduate School, three hours of graduate accounting elective must be taken to fulfill this requirement.

III. **Communications Requirement** (3 semester hours)
3 - COMM 3562 Organizational Communication

IV. **Approved Graduate Elective** (3 semester hours)
3 - Approved graduate free elective

ACCT 3597 (Professional Report in Accounting) must be written in the area of concentration of the option chosen.

Up to nine hours of specified, approved undergraduate courses for graduate credit may substitute for graduate hours in the Master of Accountancy degree plan. Of these nine undergraduate hours, no more than six may be in Accounting. Those undergraduate courses required as part of the Accounting Major Option Requirements are counted in these limitations.

CONCURRENT AWARD OF THE BBA IN ACCOUNTING AND THE MASTER OF ACCOUNTANCY (THE COMBINED BBA/MAcc PLAN)

The combined BBA/MAcc plan is a 150-hour course of study which leads to concurrent award of the Bachelor of Business Administration (BBA) degree in Accounting and the Master of Accountancy (MAcc). The plan requires completion of 117-120 semester hours of undergraduate study and 33 semester hours of graduate study.

REQUIREMENTS FOR ADMISSION:

Student are admitted to the College of Business Administration and to the accounting major based on requirements listed in the Undergraduate Catalog. Students must be admitted to the Graduate School and the Master of Accountancy program based on requirements listed in the Graduate Catalog except that the completion of a Baccalaureate degree is not required. There is no conditional admission to Graduate School under this plan.

1. **Requirements for Admission to the Pre-BBA/MAcc Plan:**
   a. Students must have completed the Non-Business Foundation and Business Foundation Requirements with an average of 3.0 or better in ENGL 3112, MATH 3201, ACCT 3201, ACCT 3202, ECON 3203, ECON 3204, and QMB 3201.
   b. Students must have completed nine hours of non- accounting Business Core Courses.
   c. Students must have completed ACCT 3321 with a grade of "B" or better and an additional nine hours of accounting courses including ACCT 3322, and two of the following: ACCT 3320, ACCT 3323, or ACCT 3327.
   d. Students must have achieved a minimum GPA of 2.7 in all junior and senior level accounting courses taken prior to admission.

   Students must be admitted to the Graduate School before taking any courses for graduate credit.

   STUDENTS SHOULD PLAN TO APPLY FOR ADMISSION TO THE GRADUATE SCHOOL DURING THEIR JUNIOR YEAR.

   A GPA OF 3.0 ON ALL WORK TAKEN BEYOND THE 90TH SEMESTER HOUR OF CREDIT IS REQUIRED TO REMAIN IN THE GRADUATE PROGRAM.

2. **Requirements for Admission to the BBA/MAcc Plan:**
   a. General competency in quantitative skills.
   b. A satisfactory score on the Graduate Management Admissions Test, the GMAT, of at least 450, and three out of five ("acceptable") or better on the analytical writing portion.
   c. The GMAT score plus 200 times the grade point average on all undergraduate and graduate work previously completed must equal 1050 or more; or the GMAT score plus 200 times the upper division and graduate level GPA must equal 1100 or more.
   d. A grade point average of at least 2.7 on all undergraduate and graduate level work already completed.
   e. Foreign students require a minimum TOEFL score of 600.

COURSE OF STUDY FOR THE COMBINED BBA/MAcc PLAN
(150 semester hours)

The course of study for the combined BBA/MAcc plan includes academic requirements both at the undergraduate and graduate level. The requirements are summarized below:

Undergraduate (117-120 semester hours)		
Non-Business Foundation Requirements	- 54-57	semester hours
Business Foundation Requirements	- 15	semester hours
Business Core Requirements	- 24	semester hours
Accounting Major Option Requirements	- 18	semester hours
Electives	- 6	semester hours
Graduate (33 semester hours)		
Business Core Requirements	- 9	semester hours
Accounting Major Option Requirements	- 18	semester hours
Electives	- 6	semester hours
Total:	150-153	

Undergraduate

1. **Non-Business Foundation Requirements** (54-57 semester hours)
   - 6 - ENGL 3111 and 3112
   - 3 - COMM 3101 or 3102
   - 6 - MATH 3120 and 3201
   - 6 - POLS 3210 and 3211
   - 6 - HIST 3101 and 3102
   - 6-9 - Natural Science (Core menu)
   - 3 - PSYC 3101 or SOCI 3102
   - 3 - Humanities (Core menu)
   - 3 - Fine Arts (Core menu)
   - 3 - Cultural Diversity (Core menu)
   - 3 - ITS 3350
   - 3 - ENGL 3355
   - 3 - ENGL 3359
2. **Business Foundation Requirements** (15 semester hours)
   - 6 - ACCT 3201 and ACCT 3202
   - 6 - ECON 3203 and ECON 3204
   - 3 - QMB 3201
3. **Business Core Requirements** (24 semester hours)
   - 3 - ACCT 3321
   - 3 - QMB 3301
   - 3 - CIS 3345
   - 3 - MKT 3300
   - 3 - FIN 3310
   - 3 - ECON 3320
   - 3 - MGMT 3303
   - 3 - POM 3321
4. **Accounting Major Option Requirements** (18 semester hours)
   - 15 - ACCT 3320, 3322, 3323, 3327, 3404
   - 3 - Approved accounting elective
5. **Electives** (6 semester hours)
   - 6 - Upper-division non-accounting electives

Consult the Undergraduate Catalog, Undergraduate Course of Study for BBA degree for additional details.

Graduate

1. **Business Core Requirements** (9 semester hours)
   - 3 - BLAW 3506
   - 3 - Approved business elective in international topics
   - 3 - MGMT 3525 (Taken last semester)
2. **Accounting Major Option Requirements** (18 semester hours)

   Tax Option

   18 - ACCT 3428*, ACCT 3522, ACCT 3597, and nine hours of ACCT 3520, 3521, 3525, 3526

   Financial Accounting/Auditing Option

   18 - ACCT 3401*, 3423*, 3510, 3523, 3524, 3597

   Managerial Accounting Option

   18 - ACCT 3421*, 3512, 3524, 3591, 3597, and three hours of an approved graduate Accounting elective

   * If taken prior to admittance to Graduate School, three hours of graduate accounting elective must be taken to fulfill this requirement.
3. **Electives** (6 semester hours)
   - 3 - Approved graduate business elective
   - 3 - Approved graduate free elective

ACCT 3597 (Professional Report in Accounting) must be written in the area of concentration of the option chosen.

Up to nine hours of specified undergraduate courses allowed for graduate credit may substitute for graduate hours in the graduate portion of the BBA/MAcc plan. Of these nine undergraduate hours, no more than six hours may be in Accounting. Those undergraduate courses required as part of the Graduate Accounting Major Option Requirements are counted in these limitations.

ACCOUNTING (ACCT)

For Undergraduate and Graduate Students

3401 Advanced Accounting I (3-0)
3402 Advanced Accounting II (3-0)
3405 Not-for-profit Accounting (3-0)
3421 Advanced Cost Accounting (3-0)
3423 Issues in Auditing (3-0)
3425 International Accounting (3-0)
3428 Federal Income Tax - Partnerships and Corporations (3-0)

For Graduate Students Only

3501 Financial Accounting (3-0)
An introductory study of accounting procedures involved in recording transactions producing income statements and interpreting financial data prepared primarily for external users. This course examines the theory and practices related to recording assets, liabilities, owners' equities, revenues and expenses in accordance with current accounting theory. *Prerequisite:* Admission to a graduate program. May be counted only as Pre-MAcc or Pre-MBA courses in the graduate degree programs offered by the College of Business Administration.

3510 Contemporary Accounting Issues (3-0)
Development of accounting theory; controversial issues involved in the measurement and reporting of enterprise periodic income. Study of authoritative pronouncements. *Prerequisite:* ACCT 3322.

3511 Accounting for Management (3-0)
A study of accounting as related to making business decisions. Readings, cases, and problems dealing with accounting concepts, budgeting and cost control, use of accounting data in planning operations and policy formulation, and tax planning in business policies. *Prerequisite:* ACCT 3309 or ACCT 3501 or ACCT 3201 and ACCT 3202. Will not count as part of the Master of Accountancy degree.

3512 Controllership (3-0)
A study of the major phases of controllership practice, including organizational status, objectives, functions, duties, and responsibilities and the managerial utilization of accounting and statistical data for planning and control. *Prerequisite:* ACCT 3511 or ACCT 3314 or ACCT 3323.

3520 Taxation of Partners, Partnerships and S Corporations (3-0)
The intensive study of federal income tax principles applicable to the formation, operation, sale and liquidation of partnerships. Special attention will be paid to the issues of distributions, basis and tax minimization opportunities. *Prerequisites:* ACCT 3428 and ACCT 3522 or equivalent, or departmental approval.

3521 Advanced Topics in Federal Taxation (3-0)
Topics will vary depending on current developments, e.g., taxation of foreign persons and multinational operations, consolidated tax returns, state and local taxation, pension plans, charitable organizations, and tax reform proposals. *Prerequisite:* ACCT 3327 or equivalent.

3522 Tax Concepts, Research and Procedure (3-0)
An in-depth study of tax issue identification, the location and analysis of tax authority, and the written communication of conclusions based upon the relevant authority. Includes coverage of tax procedure. *Prerequisite:* ACCT 3327 or equivalent.

3523 Advanced Auditing (3-0)
A study of the important concepts of auditing including the nature of audit evidence, auditor independence, audit reports, the environment of auditing, and relevant current issues. *Prerequisite:* ACCT 3423.

3524 Computer Applications in Accounting and Auditing (3-0)
Design and control of computerized accounting; use of computers in accounting and their applications to the auditing functions; stress is placed on E.D.P. control; internal auditing considerations. *Prerequisite:* ACCT 3404.

3525 Estate and Gift Taxation (3-0)
A comprehensive survey of principles involved in determining the federal estate tax and federal gift tax including the taxability and valuation of property and analysis of deductions, including the federal marital deduction. *Prerequisite:* ACCT 3327 or equivalent.

3526 Advanced Corporate Taxation (3-0)
Reorganizations, net operating losses, and other advanced areas in the field of corporate taxation. *Prerequisite:* ACCT 3428.

3591 Seminar in Managerial Accounting (3-0)
Advanced topics in managerial accounting. Topics will vary to reflect current literature. *Prerequisites:* ACCT 3314 or ACCT 3323 or ACCT 3511.

3592 Directed Individual Study in Accounting (0-0-3)
This course may be repeated, but no more than three semester credit hours may be applied to satisfy the requirements for the master's degree. *Prerequisite:* Departmental approval.

3594 Current Issues in Accounting (3-0)
A course organized to investigate special topics and current issues in accounting. May be repeated for credit when content varies. *Prerequisite:* Departmental approval.

3596 Internship in Accounting (0-0-3)
This practicum in accounting is under the supervision of accounting practitioners. *Prerequisite:* Departmental approval. May be counted as a business or free elective but not as an accounting elective in the accounting degrees.

3597 Professional Report in Accounting (0-0-3)
Must be in the area of the student's MAcc option. May be taken only once. *Prerequisite:* Departmental approval.

BUSINESS LAW (BLAW)

For Undergraduate and Graduate Students

3425 International Business Law (3-0)

3491 Law for Accountants (3-0)

For Graduate Students Only

3506 Business Law and Ethics (3-0)
A broad-based course covering an introductory study of the legal environment of business and of social and ethical considerations affecting business. *Prerequisite:* Admission to a graduate program in business. May be counted only as Pre-MAcc or Pre-MBA courses in the graduate degree programs offered by the college of Business Administration except the combined BBA/MAcc program. BLAW 3301 or BLAW 3506, but not both, may be counted toward degrees awarded in the College of Business Administration.

Business Administration

MASTER OF BUSINESS ADMINISTRATION (MBA)

The College of Business Administration, through the departments of Accounting, Economics and Finance, Information and Decision Sciences, and Marketing and Management, offers a Master of Business Administration degree. The MBA degree program is accredited by the American Assembly of Collegiate Schools of Business. The objective of the MBA program is to give students the opportunity to prepare for executive careers in business or in institutions that use business techniques and policies in management and administration. The program meets this objective by being broad in nature and aimed at general competence in overall management and administration. The majority of the course work is devoted to a broad understanding of the environment, controls, and practices which are common to most institutions. The remaining courses are determined by the student's special area of interest or concern.

REQUIREMENTS FOR ADMISSION TO THE MBA PROGRAM

All applicants for admission to the MBA program must meet all University requirements for graduate admission as well as the following College of Business Administration requirements.

1. A cumulative grade point average (GPA) of 2.7 on a 4.0 scale on all undergraduate course work completed.
2. A minimum total score of 450 and a minimum analytical writing score of 3.0 on the Graduate Management Admission Test (GMAT) are generally the minimum scores required.
3. Meet the following admissions formula: cumulative undergraduate GPA x 200 + total GMAT > 1050 or upper-division and graduate GPA x 200 plus total GMAT > 1100.
4. A TOEFL exam score of 600 is generally the minimum score required of applicants whose secondary and/or post-secondary education was in a language other than English. The determination of whether or not an applicant is required to take the TOEFL exam will be made by the Graduate School. Applicants with scores between 550 and 600 may be considered for conditional admission.
5. Applicants not meeting each of the admission requirements above may be considered for conditional admission by the MBA Graduate Studies Committee.
6. Applicants holding a Masters degree (or other graduate degree) from an accredited United States institution of higher learning will be conditionally admitted without meeting the above criteria. If they meet the above criteria, they will be fully admitted.

SPECIFIC REQUIREMENTS FOR THE MASTER OF BUSINESS ADMINISTRATION DEGREE

1. All students must meet the **Pre-Master of Business Administration (Pre-MBA) Common Body of Knowledge *Requirements*** and complete thirty-six credit hours of **Course of Study for the Master of Business Administration (MBA)** which includes the Required Graduate Core and the MBA Concentrations.

   Courses in the **Pre-MBA Common Body of Knowledge Requirements** as described below **may be waived** if, according to the MBA Graduate Studies Committee, the student has the appropriate background either in previous undergraduate or graduate course work or work experience.
2. Students earning a "B" or better in MGMT 3525 or MGMT 3535 will satisfy the comprehensive exam requirement. Students who earn a "C" will be required to pass a comprehensive exam.
3. No more than six hours in any concentration can be undergraduate courses available for graduate credit.

Pre-Master of Business Administration (Pre-MBA) Common Body of Knowledge Requirements
The parentheses ( ) below indicate the equivalent undergraduate courses.

Accounting: ACCT 3501 or (ACCT 3309, or ACCT 3201 and 3202)
Business Law: BLAW 3506 or (BLAW 3301)
Management Information system: CIS 3511 or (CIS 3345)
Economics: ECON 3504 or (ECON 3203 and 3204)
Finance: FIN 3505 or (FIN 3310)
Management: MGMT 3511 or (MGMT 3303)
Marketing: MKT 3503 or (MKT 3300)
Production Management: POM 3508 or (POM 3321)
Quantitative Methods: QMB 3511 or (MATH 3201, QMB 3201, and QMB 3301)

Course of Study for the Master of Business Administration (MBA)
(36 semester hours)

1. ***Required MBA Core*** (24 semester hours)

ACCT	3511	Accounting for Management
CIS	3513	Strategic Information Systems
ECON	3511	Managerial Economics
ECON	3560	Global Economic Environment for Managers
FIN	3511	Financial Management
MGMT	3536	Effective Management of Human Resources
MKT	3511	Marketing Management

And one of the following: (taken during the student's final semester)

MGMT 3525 Management Strategy and Policy
MGMT 3535 International Strategic Management

2. ***MBA Concentrations*** (12 semester hours)

Complete one of the following:

a. General MBA Concentration -

Twelve hours of electives available for graduate credit within the College of Business Administration or, with the approval of the MBA Graduate Studies Committee, courses outside the College.

b. International Business Concentration -

MGMT 3545 Global Management

And three of the following:

ACCT 3425 International Accounting
BLAW 3425 International Business Law
FIN 3522 International Financial Markets and Institutions
MKT 3425 International Marketing

c. Health Systems Concentration -

NURS 3535 Nursing Administration
NURS 3536 Advanced Nursing Administration
NURS 3538 Health Law, Policy and Ethics
NURS 3539 Nursing Administration in Policy Analysis (An administration practicum is required. Must be taken in last semester.)

d. Computer Information Systems Concentration -

CIS 3405 Advanced Business Systems Development
CIS 3465 Advanced Database Management
CIS 3517 Information Resources Policy and Management
CIS 3530 Expert and Decision Support Systems

e. Economics Concentration -

Complete **four** of the following:

ECON 3512 The Economic Environment
ECON 3520 Monetary and Fiscal Policy and Problems
ECON 3550 Industrial Organization and Policy
ECON 3565 Economic Development
ECON 3566 Latin American Economics
ECON 3570 Advanced Quantitative Methods in Economics

f. Finance Concentration -

Complete **four** of the following:

FIN 3501 Theory of Financial Management
FIN 3515 Securities Analysis
FIN 3516 Derivative Instruments
FIN 3518 Capital Formation, Analysis and Budgeting
FIN 3525 International Financial Management
FIN 3570 Financial Modeling

g. Human Resource Management -

MGMT 3437 Compensation and Employee Benefits
PSYC 3538 Personnel Selection and Placement .
PSYC 3551 Seminar in Human Performance

And one of the following:

MGMT 3404 Human Resource Training and Development
MGMT 3410 Employment Law and Dispute Resolution

h. Accounting Concentration -

ACCT 3510 Contemporary Accounting Issues
ACCT 3512 Controllership

And two of the following:

ACCT 3401** Advanced Accounting I
ACCT 3421** Advanced Cost Accounting
ACCT 3425** International Accounting
ACCT 3428** Federal Income Tax - Partnerships and Corporations
ACCT 3524 Computer Applications in Accounting and Auditing
ACCT 3526 Advanced Corporate Taxation
ACCT 3591 Seminar in Managerial Accounting

** Only one undergraduate course may be taken for graduate credit.

i. Production and Materials Management -

POM 3510 Manufacturing Strategy
POM 3511 Purchasing and Materials Management

And two of the following:

MGMT 3546 Total Quality Management
MKT 3456 Logistics and Supply Chain Management
MKT 3490 Industrial Marketing

j. Marketing Management -

MKT 3491 Services Marketing
MKT 3492 Product and Price Management
MKT 3521 Marketing Analysis
MKT 3555 International Marketing

MASTER OF BUSINESS ADMINISTRATION AND MASTER OF PUBLIC ADMINISTRATION TWO-DEGREE OPTION **(MBA/MPA)**

Students may also apply for a two-degree option MBA-MPA program. The objective of this program is to permit students with broad interest in both the public and private sectors to double register in both the MBA and MPA programs. With the increasing interdependence of the public and private sectors, this option is attractive to those students wishing to pursue careers in positions responsible for working with their counterparts in private or public organizations. In order to be admitted into the two-degree option, the applicant must specify the option at the time of application to the Graduate School. Students who wish to enter the MBA-MPA program should consult with the Graduate advisor for the College of Business Administration and with the Director of the MPA program with regard to admission requirements and required courses.

The program consists of 60 hours of graduate study, of which 30 hours are in areas of Business Administration and 39 hours are in areas of Public Administration.

SPECIFIC REQUIREMENTS FOR THE MBA/MPA TWO-DEGREE OPTION

1. Students must meet all admission requirements for both programs.
2. Students must meet the Pre-MBA requirements for the MBA degree. See description for the MBA degree program and the conditions for waiver.
3. The program consists of 24 hours of Required MBA Core courses, 6 hours of graduate business electives, 27 hours of MPA core courses, 3 hours of POLS 3567, and a comprehensive written exam in the core subject areas of public administration. The number of hours necessary to complete the two-degree option will vary depending upon each student's background and previous academic work.
4. The core curriculum in each of the separate degree program must be satisfactorily completed.
5. Electives must be approved by the academic advisors of both programs; upon such approval, the core courses of one program may be used to meet the elective requirements of the other.
6. Admission to and continuance in the program are administered separately by the MBA and MPA Graduate Committees and by the Graduate School.

Economics and Finance

236 Business Administration Building
(915) 747-5245

CHAIRPERSON: Timothy P. Roth

GRADUATE FACULTY: Brannon, Herbst, Holcomb, James, Johnson, Roth, Schauer, D. Smith, Sprinkle, Tollen, Traichal

MASTER OF SCIENCE DEGREE IN ECONOMICS (MS)

The Department of Economics and Finance offers a Master of Science degree in economics with the opportunity for specialization in areas within economics and for course work in areas outside economics. Some suggested areas for specialization within economics are regulation, international economics, applied business economics,

and border economics. Some suggested areas for the minor or for interdisciplinary work are border studies, finance, and computer information. All proposed degree plans must be approved by the Graduate Advisor and the Graduate School.

Thesis and non-thesis programs are available. Students enrolled in the thesis program must take 24 hours of course work in addition to completion of the thesis for which six hours credit are given. The non-thesis option requires a total of 36 hours of course work including completion of Economics 3595 and submission of two bound research papers which may be drawn from previous graduate courses in economics. Both the thesis and the reports must be presented to a committee charged with the responsibility of conducting a final examination.

The ability to take course work in areas outside economics is available either through completion of a minor, with as many as 12 hours and a minimum of six, or through the interdisciplinary program. The interdisciplinary program is a 36-hour program with a minimum of 18 hours in economics. The student may elect to write a thesis for 6 hours credit or may enroll in Economics 3595 for 3 hours credit and submit two bound research papers which may be drawn from previous graduate courses in economics. A representative from the minor or interdisciplinary area must be a member of the thesis or report committee.

REQUIREMENTS FOR ADMISSION TO THE MS DEGREE IN ECONOMICS

1. A bachelor's degree from an accredited institution in the United States (or proof of equivalent training in a foreign institution).
2. General competency in quantitative methods.
3. A satisfactory score on the Graduate Record Examination (GRE): the averaged GRE Quantitative and Verbal scores times 0.5 plus the grade point average on all academic work previously completed times 200 must equal 950 or more. Further, the GRE Verbal and Quantitative scores must each exceed 500.
4. Completion of the following courses or their equivalents: [The course in parenthesis indicates the equivalent undergraduate course.]

ECON 3504	(3203, 3204)	Business Economics
ECON 3512	(3302)	The Economic Environment
ECON 3511	(3303)	Managerial Economics
QMB 3511	(QMB 3201, QMB 3301, and Math 3201)	Quantitative Methods

COURSE OF STUDY FOR THE MS IN ECONOMICS

All Candidates must complete the following courses:

ECON 3501	Research Methodology
ECON 3502	Microeconomic Theory
ECON 3503	Macroeconomic Theory
ECON 3570	Advanced Quantitative Methods in Economics

And one of the following options:

a. **Thirty-hour Thesis Option** (18 semester hours)
   - 12 - Graduate course hours in Economics or an approved minor.
   - 6 - ECON 3598 - *Thesis* and ECON 3599 - *Thesis*

b. **Thirty-six hour Non-Thesis Option** (24 semester hours)
   - 21 - Graduate course hours in Economics
     or
     Nine hours of graduate courses in Economics and twelve hours in an approved minor.
   - 3 - ECON 3595

c. **Interdisciplinary Option** (24 semester hours)
   - 18 - Graduate course hours in an approved minor.
   - 6 - ECON 3598 and ECON 3599 or
   - 6 - ECON 3595 and ECON elective

The Department of Economics and Finance also participates in the Master of Business Administration and the Master of Accountancy degrees, the requirements for which are found under Business Administration and Accounting in this catalog.

ECONOMICS (ECON)

For Undergraduate and Graduate Students

3430 Public Sector Economics (3-0)

3440 Economics of Labor (3-0)

3468 Economy of Mexico (3-0)

For Graduate Students Only

All graduate courses listed below require twelve hours of economics or departmental approval.

3501 Research Methodology (3-0)
Concentrated study of data gathering methods, research design and analytical and statistical techniques used in economic research. The purpose of the course is to master the quantitative methods necessary to understand current literature in economics. *Prerequisites:* ECON 3302 and 3303; or ECON 3511 and ECON 3512.

3502 Microeconomic Theory (3-0)
The determination of prices and output. The theory of markets ranging from perfect competition through monopolistic competition and oligopoly to monopoly. The theory of the firm and the industry. Welfare implications of price determination. *Prerequisite:* ECON 3303 or ECON 3511.

3503 Macroeconomic Theory (3-0)
The analysis of the determination of total income in the economy and related problems. Strong emphasis is given the theory of income determination, studies in the demand and supply of money, and the relationship between government policy and economic activity. *Prerequisites:* ECON 3302 or ECON 3512 and MATH 3201 or the equivalent.

3504 Business Economics (3-0)
An intensive, in-depth study of economics with emphasis upon the theory of the static profit maximizing firm and upon the effects of the economic environment upon the firm. *Prerequisite:* Admission to a graduate program in business. May be counted only as Pre-MAcc or Pre-MBA courses in the graduate degree programs offered by the College of Business Administration.

3511 Managerial Economics (3-0)
An evaluative study of the theory of economic decision-making in individual firms, groups of firms, and industries under market conditions ranging from competition to monopoly. (This course may not be counted for graduate credit by students in the MS program in Economics.) *Prerequisite:* ECON 3204 or ECON 3504.

3512 The Economic Environment (3-0)
An evaluative study of the determinants of levels of national income, employment, and prices. (This course may not be counted for graduate credit by students in the MS program in Economics.) *Prerequisite:* ECON 3203 or ECON 3504.

3520 Monetary and Fiscal Policies and Problems (3-0)
An analysis and critique of monetary and fiscal policies and problems designed to facilitate economic stability and economic progress. Emphasis is given development and application of techniques used for analysis of economic activity, in-depth studies of stabilization policies and their effects, and analysis of problems inherent in the economic system. *Prerequisite:* ECON 3302 or ECON 3512 or departmental approval.

3550 Industrial Organization and Policy (3-0)
Selected topics in the structure, conduct, regulation of business and public policy toward business. *Prerequisite:* ECON 3303 or ECON 3511.

3560 Global Economic Environment for Managers (3-0)
Economic principles of the flow of goods, services, and capital funds across international borders. Analysis of existing national and international economic institutions influencing international trade and capital flow. *Prerequisite:* ECON 3302 or ECON 3512 or departmental approval.

3565 Economic Development (3-0)
A critical analysis of policies designed to achieve economic growth in less developed countries. Topics include monetary and fiscal measures, development of human resources, capital formation, investment allocation, introduction of new technologies and coordination of domestic policies with the international economy. *Prerequisite:* ECON 3302 or ECON 3512.

3566 Latin American Economics (3-0)
A study of the existing economic institutions in Latin America. Application of economic principles to Latin American economic problems and policy. The emphasis is institutional rather than analytical. *Prerequisite:* ECON 3302 or ECON 3512 or departmental approval.

3570 Advanced Quantitative Methods in Economics (3-0)
Correlation and regression analysis, autocorrelation, elements of linear algebra and other current quantitative topics will be treated. The course is designed to provide basic expertise in the application of quantitative techniques to economic problems. *Prerequisite:* ECON 3501 or departmental approval.

3580 Development of Economic Thought (3-0)
An interpretative survey of principal doctrines in the field of economic theory and policy since the middle of the 19th century. *Prerequisites:* ECON 3302 and ECON 3303 or ECON 3512 and ECON 3511 or departmental approval.

3592 Directed Individual Study in Economics (0-0-3)
This course may be repeated, but no more than three semester credit hours may be applied to satisfy the requirements for the master's degree. *Prerequisite:* Instructor's approval or Graduate Advisor's approval.

3594 Current Issues in Economics (3-0)
A course organized to investigate special topics and current issues in economics. May be repeated for credit when content varies. *Prerequisite:* Departmental approval.

3597 Professional Report in Economics (0-0-3)
May be taken only once for credit. *Prerequisite:* Instructor's approval and Graduate Advisor's approval.

3598 Thesis (0-0-3)
Initial work on the thesis. *Prerequisite:* Approval of Graduate Advisor.

3599 Thesis (0-0-3)
Continuous course enrollment required while work on the thesis continues. Prerequisite: ECON 3598 and approval of Graduate Advisor.

FINANCE (FIN)

For Undergraduate and Graduate Students

3411 Commercial Bank Management (3-0)
3412 Current Issues in Banking (3-0)
3416 Speculative Markets (3-0)
3418 Financial Statement Analysis (3-0)
3428 Central Banking (3-0)

For Graduate Students Only

3501 Theory of Financial Management (3-0)
In-depth study of the theoretical foundations of modern finance. Among the topics covered are capital structure and leverage, cost of capital, valuation, security valuation, security pricing, option pricing, market behavior, risk and uncertainty, risk management, and hedging. This course is designed to provide balanced coverage of the theory of finance as it applies to the internal managerial operations of the firm, and the external environment, both domestic and international. *Prerequisites:* FIN 3511 and departmental approval.

3505 Financial Concepts and Analysis (3-0)
An intensive, in-depth study of finance with emphasis on the managerial implications of financial concepts. *Prerequisites:* Admission to a graduate program in business; ACCT 3501. May be counted only as Pre-MAcc or Pre-MBA courses in the graduate degree programs offered by the College of Business Administration.

3511 Financial Management (3-0)
A study of the financial manager in executive decision making, involving financial planning and analysis in the allocation of the financial resources of a firm; investment decision-making, capital budgeting, and financial problems of growth. *Prerequisite:* FIN 3310 or FIN 3505 or departmental approval.

3515 Securities Analysis (3-0)
An in-depth study of the techniques of market and security analysis. Special emphasis is placed on the development of portfolio theory, application of the theory to real-world situations, and the evaluation of portfolio management. *Prerequisite:* FIN 3410 or FIN 3511 or departmental approval.

3516 Derivative Instruments (3-0)
A study of the nature, functions and applications of the various futures and options markets and contracts. Basis, long and short term hedging, spreading, normal and inverted markets are examined, along with theoretical considerations. *Prerequisite:* FIN 3416 and FIN 3511.

3518 Capital Formation, Analysis, and Budgeting (3-0)
This course is designed to provide an in-depth study of the cost of capital and arguments concerning the appropriate specification of capital costs; analysis of the capitalization package of the firm; study of cash flows as they relate to the investment decision; risk analysis in the capital budgeting process and a study of techniques of capital budgeting under various constraints. *Prerequisite:* FIN 3410 or FIN 3511 or departmental approval.

3522 International Financial Markets and Institutions (3-0)
An in-depth study of the markets and institutions that influence the flow of goods and services among nations, exchange rate determination, and international monetary problems. Subject matter may vary at the discretion of the instructor. *Prerequisite:* FIN 3410 or FIN 3511 or departmental approval.

3525 International Financial Management (3-0)
An in-depth study of foreign exchange risk management as it relates to the protection of future investment decisions, the cost of capital, and the firm's financial structure. Subject matter may vary at the discretion of the instructor. *Prerequisite:* FIN 3410 or FIN 3511 or departmental approval.

3570 Financial Modeling (3-0)
Study of classical and contemporary financial models. Emphasis on examining theoretical foundations, testing and modification of existing models, and inferences they provide for decision making. Among topics covered are simulation models of financial processes of the firm, modeling and testing securities market behavior, risk management strategies, valuations, and sensitivity analysis of financial decisions. *Prerequisites:* FIN 3501, ECON 3570, and departmental approval.

3592 Directed Individual Study in Finance (0-0-3)
This course may be repeated, but no more than three semester credit hours may be applied to satisfy the requirements for the master's degree. *Prerequisites:* Instructor's approval and Graduate Advisor's approval.

3594 Current Issues in Finance (3-0)
A course organized to investigate special topics and current issues in finance. May be repeated for credit when content varies. *Prerequisite:* Departmental approval.

3597 Professional Report in Finance (0-0-3)
May be taken only once for credit. *Prerequisites:* Instructor's approval and Graduate Advisor's approval.

INFORMATION AND DECISION SCIENCES

205 Business Administration Building
(915) 747-5496

CHAIRPERSON: Reza Torkzadeh
PROFESSOR EMERITUS: Edward Y. George
GRADUATE FACULTY: Dowlatshahi, Gemoets, Mahmood, Martin, Pflughoeft, Torkzadeh

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 which are found under Business Administration, Accounting, and Economics in this catalog.

The following areas are included under Information and Decision Sciences:

Computer Information Systems
Production Operations Management
Quantitative Methods

COMPUTER INFORMATION SYSTEMS (CIS)

For Undergraduate and Graduate Students

3405 Advanced Business Systems Development (3-0)
3465 Advanced Data Base Management (3-0)

For Graduate Students Only

3511 Management Information Systems Theory and Practice (3-0)
A broad study of Management Information Systems, Decision Support Systems, and Expert Systems. MIS will be studied in-depth from the standpoint of structures, technology and requirements. Problems and issues related to the design, implementation and management of MIS will be covered.

3513 Strategic Information Systems (3-0)
This course is concerned with how general managers can apply information technology (IT) to increase strategic advantage and organizational effectiveness. The objective of the course is to develop students' ability to identify information systems that can increase organizational competitiveness and to recognize the major threats to these desired outcomes. Successful application of IT to business problems and opportunities will also be reviewed.

3517 Information Resource Policy and Management (3-0)
A study of the information systems management function with particular emphasis on planning, organizing, and controlling information resources including MIS personnel. Coverage of various methodologies for assessing and evaluating the MIS function. Also covered are various strategies and procedures for managing MIS development. *Prerequisite:* CIS 3511.

3530 Expert and Decision Systems (3-0)
Fundamental Decision Support System (DSS) and Expert System (ES) concepts, illustrating a number of software products and indicating possible directions for future development. The course covers the functions and components of DSS and ES, design and implementation issues, and organizational issues. Topics include the evolution of DSS/ES versus traditional information systems. *Prerequisite:* CIS 3511.

3592 Directed Individual Study in CIS (0-0-3)
This course may be repeated, but no more than three semester credit hours may be applied to satisfy the requirements for the master's degree. *Prerequisite:* Departmental approval.

3594 Current Issues in CIS (3-0)
A course organized to investigate special topics and current issues in Computer Information Systems. May be repeated for credit when content varies. *Prerequisite:* Departmental approval.

3597 Professional Report in Computer Information Systems (3-0)
May be taken only once for credit. Continuous enrollment required while work on the professional report continues. *Prerequisite:* Departmental approval.

PRODUCTION MANAGEMENT (POM)

For Undergraduate and Graduate Students

3333 Production Control (3-0)

For Graduate Students Only

3508 Concepts of Production Management (3-0)
The production or operations function is concerned with the planning and decision-making activities of managers directly responsible for the conversion of resources into products and services. The operations manager plans production, schedules work, and controls inventories. This course is a study of the issues underlying the management of operations, and introduces the student to a variety of tools and techniques used by operations managers exploring alternative means of implementing decisions. *Prerequisites:* QMB 3201 and MATH 3201.

3510 Manufacturing Strategy (3-0)
This course is primarily intended for manufacturing and operations managers and practitioners. Manufacturing strategy attempts to make explicit the interrelationships between a firm's markets and its manufacturing processes, control systems, and other functional areas. Without strategic context, manufacturing has traditionally responded to changes with an ad hoc set of solutions. The course covers such topics as: Product Profiling, Choice and Positioning of Processes, manufacturing implications of corporate marketing decisions, dimensions of competitiveness quality, productivity, and raw Products and Processes, Planning and Implementing Manufacturing Strategies, etc. *Prerequisite:* POM 3508.

3511 Purchasing and Materials Management (3-0)
This course addresses the issues related to the efficient and effective management of supply and materials function. The course primarily focuses on the management of materials and the control of materials costs in businesses and institutional enterprises. It emphasizes purchasing as the primary materials activity. At the same time, it explicitly integrates the purchasing activity with all other materials activities. Some of the topics include: The role, objectives, policies, operating procedures and organization of purchasing and materials management; sources of supply, pricing and cost analysis; make or buy decisions; standardization, negotiation; legal, ethical, and international considerations; value analysis/engineering; inventory and production planning, other related topics. *Prerequisites:* POM 3508 and departmental approval.

3597 Professional Report in Production Operation Management (3-0)
May be taken only once for credit. Continuous enrollment required while work on the professional report continues. *Prerequisite:* Departmental approval.

QUANTITATIVE METHODS (QMB)

For Graduate Students Only

3511 Quantitative Methods in Business (3-0)
Basic mathematical techniques employed in the solution of management problems, including probability theory and tests of hypotheses. May be counted only as Pre-MAcc or Pre-MBA courses in the graduate degree programs offered by the College of Business Administration. *Prerequisite:* Departmental approval.

3597 Professional Report in Quantitative Methods in Business (3-0)
May be taken only once for credit. Continuous enrollment required while work on the professional report continues. *Prerequisite:* Departmental approval.

Marketing and Management

230 Business Administration Building
(915) 747-5185

CHAIRPERSON: Gary L. Sullivan
GRADUATE FACULTY: Barnes, Hadjimarcou, Hoy, Ibarreche, Michie, Stevens, 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 which are found under Business Administration, Accounting, and Economics in this catalog.

MANAGEMENT (MGMT)

For Undergraduate and Graduate Students

3404 Human Resource Training and Development (3-0)
3406 Franchising (3-0)
3415 Human Resource Staffing and Planning
3425 International Management (3-0)
3437 Compensation and Benefits (3-0)

For Graduate Students Only

3511 Organizational Management Seminar (3-0)
An experiential study of management processes and problems associated with the social system of organizations including individual and group behavior, behavior among groups, and behavior of organizations in an international context interacting with external and internal environments.

3514 Corporate Entrepreneurship (3-0)
Corporate entrepreneurship is the process of creating new ventures and generating innovation within existing organizations. This course examines organizational culture characteristics that facilitate or inhibit corporate venturing. Emphasis is placed on the process by which new venture opportunities are identified, launched, and managed. The course focuses on the behaviors of venture team members associated with success. *Prerequisite:* MGMT 3511.

3525 Management Strategy and Policy (3-0)
A seminar devoted to an investigation, analysis, and discussion of American business problems, trends, policies, and major issues. To be taken in the last semester. *Prerequisite:* Departmental approval.

3535 International Strategic Management (3-0)
A study of the global competitive and economic factors that shape the environment in which firms operate. The distinctive nature of the business environment in developing countries, and the managerial implications of that, will be highlighted. *Prerequisites:* Departmental approval and to be taken in the last semester--fulfills the requirements for MGMT 3525.

3536 Effective Management of Human Resources (3-0)
A study of methods to effectively utilize and manage human resources in a rapidly changing business environment. Topics covered include planning, staffing, appraising, compensating, training, career management, improving the work environment, and establishing and maintaining effective work relationships. *Prerequisite:* MGMT 3511 or departmental approval.

3545 Global Management (3-0)
This course seeks to provide students with a synthesis of knowledge about globalization and organizational life. Additionally, it deals with the manner in which organizations orient themselves in order to respond to issues that stem from differing cultural logics. *Prerequisite:* MGMT 3511.

3546 Total Quality Management (3-0)
Analysis of the philosophy of total quality, world class, and productivity management theories. Students will be exposed to "real world" practitioners and problems to build a perspective on problems faced by businesses, of all sizes and forms, in light of global competition. *Prerequisites:* QMB 3511 and MGMT 3511 or departmental approval.

3592 Directed Individual Study in Management (0-0-3)
This course may be repeated, but no more than three semester credit hours may be applied to satisfy the requirements for the master's degree. *Prerequisite:* Departmental approval.

3594 Current Issues in Management (3-0)
A course organized to investigate special topics and current issues in management. May be repeated for credit when topic varies. *Prerequisite:* MGMT 3511 or departmental approval.

3597 Professional Report in Management (0-0-3)
May be taken only once for credit. *Prerequisite:* Departmental approval.

MARKETING (MKT)

For Undergraduate and Graduate Students

3425 International Marketing (3-0)
3456 Logistics and Supply Chain Management (3-0)
3490 Industrial Marketing (3-0)
3491 Services Marketing (3-0)
3492 Product and Price Management (3-0)

For Graduate Students Only

3503 Marketing Systems (3-0)
An intensive study of the concepts and analytical techniques employed in marketing, including assessment of the marketing environment and of market potential, the selection of target markets, and the design and implementation of marketing activities. *Prerequisite:* Admission to a graduate program in business. May be counted only as Pre-MAcc or Pre-MBA courses in the graduate degree programs offered by the College of Business Administration.

3511 Marketing Management (3-0)
Analysis of policy formulation by marketing management with special emphasis on the influence of internal and external environment factors that affect the competitive strategies of a marketing firm.

3521 Marketing Analysis (3-0)
A study of research designs, methods, and analytical techniques applicable to those business activities involved in moving goods from producer to consumer. *Prerequisite:* MKT 3511 or departmental approval.

3555 International Marketing (3-0)
This course focuses on the types of marketing decisions facing the international marketing manager in the multinational firm. It examines international marketing in terms of exporting and importing as well as other modes of entry. Considerable emphasis is placed upon differences among markets because of geography, politics, economics, culture, commercial policy, legal matters, and trade practices. Areas of investigation include global marketing management of the marketing mix and border/regional issues. *Prerequisite:* MKT 3511.

3592 Directed Individual Study in Marketing (0-0-3)
This course may be repeated, but no more than three semester credit hours may be applied to satisfy the requirements for the master's degree. *Prerequisite:* Departmental approval.

3594 Current Issues in Marketing (3-0)
A course organized to investigate special topics and current issues in Marketing. May be repeated for credit when content varies. *Prerequisite:* MKT 3511 or departmental approval.

3597 Professional Report in Marketing (0-0-3)
May be taken only once for credit. Continuous enrollment required while work on the professional report continues. *Prerequisite:* Departmental approval.

College of Education

Educational Leadership and Foundations
Educational Psychology and Special Services
Teacher Education

Dr. Arturo Pacheco, Dean
Dr. Josefina Tinajero, Assistant Dean
Dr. Thomas Wood, Assistant Dean

Education Bldg., Room 414
Phone: (915) 747-5572
Fax: (915) 747-5755

The College of Education

The College of Education has as its mission the preparation of education professionals and the investigation of problems and opportunities associated with schools and other youth-serving agencies, especially those in multicultural communities. Graduate programs in Education are based on established educational research and essential knowledge of sound professional practice. All programs in the College are approved by the Texas Higher Education Coordinating Board.

Graduate courses are offered through three departments: Educational Leadership and Foundations, Educational Psychology and Special Services, and Teacher Education.

Graduate degree programs offered by the College of Education include a Master of Arts degree in Education and the Master of Education degree with majors in Education, Educational Administration, Educational Diagnostician, Educational Supervision, Counseling, Instructional Specialist, Reading Education, and Special Education.

The Ed.D. in Educational Leadership and Administration offers students the opportunities for doctoral study.

It is also possible for students to take post-baccalaureate coursework leading to certification by the Texas Education Agency as Professional School Supervisor, Professional Mid-Management School Administrator, and Professional School Superintendent. Professional certification for classroom teachers can also be earned.

The College of Education, in partnership with local area school districts, offers an Alternative Certification Program. In this program, candidates teach full-time in an elementary or secondary public school and complete summer and evening course work toward initial (provisional) teacher certification in Texas. For students separately admitted to the Master of Education degree, Instructional Specialist major, some course work may apply toward the graduate degree. For more information, contact the Director of Alternative Certification, Education 414, and the Graduate Advisor for the Instructional Specialist Program.

Persons seeking information about teacher certification in Texas should contact the Education Advising Office, Education 412.

MASTER OF ARTS IN EDUCATION

The Master of Arts degree with a major in Education is designed for students who wish to pursue research and who wish to continue studies beyond the master's degree level.

Students may pursue the MA in Education in any of three academic departments in Education:

* Educational Leadership and Foundations
* Educational Psychology and Special Services, and
* Teacher Education.

Prerequisites: At least 12 semester hours of upper-division coursework in Professional Education, a satisfactory undergraduate GPA, and a satisfactory score on the Graduate Record Examination. International students whose first language is not English must score 550 or higher on the TOEFL.

Admission: Applicants must additionally submit an acceptable plan of study to the Graduate Advisor, representing the Graduate Studies Committee of the selected department. The plan must be submitted and approved by the academic department and by the Graduate School during the student's first term of enrollment.

Program: Thirty semester hours of coursework, including at least 21 semester hours at the 0500 level and a thesis (with oral defense).

Thesis: A thesis and an oral defense, both satisfactory to the Graduate Studies Committee of the academic department, must be completed to meet degree requirements.

CERTIFICATION AND ENDORSEMENT

Initial teacher certification and professional certification for classroom teachers can also be earned. Eligibility for these programs includes a minimum 2.5 cumulative grade point average from an accredited college or university, successful completion of the TASP (Texas Academic Skills Program), and development of an approved plan of study.

Elgible applicants for certification and endorsement programs will be notified that they may enroll as non-degree students but will need to contact the Certification Office in the College of Education immediately for eligibility into one of several certification or endorsement programs.

All post-baccalaureate students are required to maintain a minimum cumulative GPA of 2.5. Students whose cumulative GPA drops below a 2.5 are placed on academic probation and have nine semester hours in which to return the GPA to 2.5 or higher. Failure to do so will result in dismissal from the University.

The Certification Office and the College of Education are responsible for course scheduling and may require a minimum enrollment per term for admitted students. This Office additionally will develop a plan of study for each student in keeping with the requirements set forth by the Texas Education Agency (TEA). The certification or endorsement will be earned upon successful completion of all requirements.

Graduate-level course work completed during the certification or endorsement program that has not been used to meet other degree requirements may be recommended by the departmental Graduate Advisor to the Graduate School to count towards an advanced degree under certain circumstances. These courses are limited to a maximum of nine (9) semester hours in which the grade of "B" or higher has been earned within the time limits and other restrictions detailed in this Graduate Studies catalog.

Additional information on certification and endorsement programs is available from the Certification Office within the College of Education and the Graduate School.

Educational Leadership and Foundations

501 Education Building
(915) 747-5300

CHAIRPERSON AND GRADUATE ADVISOR: John Daresh
GRADUATE FACULTY: Brooks, Daresh, Heger, Nash, Pacheco, Peper, Rippberger, Sanford, Stockebrand

The Educational Leadership and Foundations Department offers an MA degree with a major in Education and the MEd degree with the following majors:

Education
Educational Administration
Educational Supervision

In addition to these degree programs, the Department offers course work leading to certification by the Texas Education Agency in the following areas:

Professional Mid-Management School Administrator
Professional School Superintendent
Professional School Supervisor

MASTER OF EDUCATION

Students who wish to pursue graduate study directed toward developing leadership skills and their knowledge base may pursue one of three majors in the Master of Education degree.

Admission Requirements:

Students seeking admission to any of the graduate degree programs in the Department must complete the following prior to the semester in which they first plan to enroll:

1. Complete the application for admission to the Graduate School and qualify for admission to the Graduate School;
2. Achieve a satisfactory score on the Graduate Record Examination;

3. Schedule an appointment with a Department Faculty Advisor (915) 747-5300.

Education

Students whose professional needs are not met by any of the MEd. programs may plan a special program. Please see the Graduate Advisor for information and assistance.

Educational Administration

This plan is intended primarily for students who wish to complete requirements for certification as a Professional Mid-Management School Administrator. The student should confer with a Department Faculty Advisor to determine additional requirements for TEA certification as a Professional Mid-Management School Administrator.

Additional Admission Requirements

A minimum of 12 semester hours of upper division course work in Professional Education.

Core Requirements (15 semester hours)

EDRS 3505 Educational Research and Statistics I
EDRS 3506 Educational Research and Statistics II
EDAD 3510 Introduction to Educational Administration
EDAD 3512 Instructional Leadership and Supervision I
TED 3501 Curriculum Theory and Design

Academic Area (6 semester hours)

SOCI 3575 Seminar: Southwestern Cultures or other approved upper division or graduate course in multi-cultural studies; three semester hours of approved upper division or graduate course work from social science fields.

Specialization (15 semester hours)

EDAD 3540 Human Factors in Education
EDAD 3542 Educational Law
EDAD 3544 Instructional Leadership and Supervision II
EDAD 3546 *Educational Program Planning and Evaluation*
EDAD 3548 Administration of School Personnel and Services

Comprehensive Examination

Written comprehensive examination. *Prerequisite:* completion of all required EDAD courses or departmental approval.

Total: 36 semester hours

Educational Supervision

This plan is intended primarily for students who wish to complete requirements for certification as a Professional School Supervisor. The student should confer with a Department Faculty Advisor to determine additional requirements for TEA certification as a Professional School Supervisor.

Additional Admission Requirements

12 semester hours of upper division course work in Professional Education.

Core Requirements (15 semester hours)

EDRS 3505 Educational Research and Statistics I
EDRS 3506 Educational Research and Statistics II
EDAD 3510 Introduction to Educational Administration
EDAD 3512 Instructional Leadership and Supervision I
TED 3501 Curriculum Theory and Design

Subject Concentration (6 semester hours):

A minimum of six semester hours of approved upper division or graduate credit in the candidate's teaching endorsement; may include reading, special education, or bilingual education.

Specialization (15 semester hours)

EDAD 3540 Human Factors in Education
EDAD 3542 Educational Law
EDAD 3544 Instructional Leadership and Supervision II
EDAD 3546 Educational Program Planning and Evaluation
EDPC 3542 Psychology of Individual Differences
or
EDPC 3540 Theories of Learning

Comprehensive Examination:

Written comprehensive examination. *Prerequisite:* completion of all required EDAD courses, or departmental approval.

Total: 36 semester hours

MASTER OF ARTS IN EDUCATION

The Master of Arts degree is designed for students wishing to pursue research and to continue studies beyond the master's degree. Students may work with the Department of Educational Leadership and Foundations, specifically in the areas of Educational Supervision and Educational Administration, to develop a plan of study.

This thirty-semester hour thesis program is described under the **College of Education**. Six to twelve hours of course work may be taken in a related discipline of which at least three semester hours must be taken in residence. Students must make an appointment with a Department Faculty Advisor: (915) 747-5300.

EdD IN EDUCATIONAL LEADERSHIP AND ADMINISTRATION

The Doctor of Education (EdD) program in Educational Leadership and Administration offers its students opportunities to develop the added knowledge, skills, and experiences necessary for high-level leadership roles in contemporary and future leadership positions in educational settings.

Requirements for Admission–Students accepted to the program will be required to have a Master's degree in Educational Leadership Administration or another academic discipline. Students who apply with a Master's in a discipline other than educational leadership administration must demonstrate competence in the fifteen semester credit hour core courses of the Master's degree in Educational Administration. Competence may be demonstrated in one of three methods as follows: (1) by taking the 15 semester credit hour core courses in the Master's degree in Educational Administration, or (2) by passing a departmentally administered examination over the content of the core courses; or (3) by substitution of equivalent graduate course work in a transcript review acceptable to the graduate studies committee of the doctoral program.

In addition, each applicant must apply to the Graduate School for admission. This process includes submission of transcripts of all previous college and university course work (GPA in previous upper division undergraduate and graduate courses of 3.25 or better recommended; scores (usually 500 on the verbal and 500 on the quantitative portions of the examination) from the Graduate Record Examination (GRE); at least three letters of recommendation from individuals who are familiar with the applicant's potential for doctoral level studies; a written statement of purpose for pursuing the doctoral program written in English, to be judged as a writing sample; and includes a successful interview before the graduate studies committee of this doctoral program. Foreign students must also present a score of 550 or better on the TOEFL examination.

Course Requirements–The minimum credit hour requirements are 60 semester credit hours beyond the Master's Degree. Some students may be required to take more hours because of a particular specialization interest. The minimum student credit hours in each of the program components are listed below:

Core Courses	30 semester hours
Directed Electives	12 semester hours
Free Electives	6 semester hours
Internship	6 semester hours
Dissertation	6 semester hours
Total Program Minimum:	60 semester hours

Core Courses and Academic Residency: Students enrolled in the EdD program must complete two full semesters in residence. Students admitted for doctoral study will take their initial semester as full time resident students. Four common courses (twelve semester credit hours) will be taken by each student with a cohort of other doctoral students during their first semester of study. These four courses (EDAD 3601, EDAD 3602, EDAD 3603, and EDAD 3604) constitute a prerequisite academic foundation for the remainder of the program.

Upon successful completion of the first semester of full-time enrollment and residency, students may proceed as full-time or part-time students, except that each student must complete at least one additional long semester of full-time academic residency (or two full-time summer sessions) before the completion of the doctorate.

During subsequent semesters of course work, all doctoral students will be encouraged to take a minimum of six semester credit hours to maintain reasonable progress toward completion of the degree.

Electives: The two elective components (Directed Electives and Free Electives) of the program are designed to give doctoral students opportunities to pursue specialized academic interests in educational leadership and administration. All students must select a minimum of twelve semester credit hours from a set list of Directed Electives courses, as well as a minimum of six semester credit hours from Free Electives courses which are graduate level courses outside the Department of Educational Leadership and Foundations.

In some cases, individual students may require additional advanced course work beyond the minimum number of courses and semester credit hours. In all cases, the complete program of study for each student must be approved by the student's Graduate Advisor and may be revised if necessary.

Language Proficiency: Proficiency in a second language (preferably Spanish) will be required prior to admission to Doctoral Candidacy and it may be demonstrated through one of the following options: an examination administered by the Department of Languages and Linguistics, completion of two sophomore-level language courses with a grade of "B" or better, or an appropriate score on a language examination administered by the College Entrance Examination Board. Given the focus of this doctoral program and the urban populations that its graduates are likely to serve, the normal expectation is that students will be bilingual in English and Spanish before admission to candidacy. Courses and semester credit hours taken to meet this requirement will not count toward the doctoral degree.

Qualifying Examination: After completing the Core and Elective courses and the residency requirement, students will take a written qualifying examination. Successful completion of the qualifying examination will advance students to Doctoral Candidacy.

Internship: All students will participate in a two-semester internship with a practicing professional administrator to be selected and trained specifically for the mentorship role.

Doctoral Committee and Dissertation Proposal: Upon successful completion of the Qualifying Examination and admission to Doctoral Candidacy, a Doctoral Committee will be assembled to oversee the design of the dissertation study and the writing of the dissertation itself. Approval of the dissertation proposal by the Doctoral Committee is necessary before a student is granted permission to proceed with the dissertation.

Oral defense of the Dissertation: When the dissertation is complete, students will submit the document to their Doctoral Committee for evaluation. When the Doctoral Committee determines that the dissertation is complete and the student is prepared, an oral defense of the dissertation will be scheduled. Upon successful performance in the oral defense, and the completion of any written modifications recommended as a result of the oral defense, and the completion of all other program requirements, the student will be recommended to the Graduate School for the EdD degree.

Curriculum

The doctoral program curriculum includes course work; an internship in educational leadership; and research leading to a dissertation. Students may shape their course work in the advanced phases to enhance their career and research interests. Four general career options include central office leadership; leadership in assessment, evaluation, and technology; school site leadership; and leading in other education settings.

Core Courses: Students must satisfactorily complete all 10 courses (30 semester credit hours), which constitute the Core Curriculum for the doctoral program. Core courses are listed below:

EDAD 3601 Historic and Philosophical Foundations of Education
EDAD 3602 Advanced Research Design and Data Analysis
EDAD 3603 Seminar in Decision-Making and Problem Solving in Education
EDAD 3604 Organizational Theory and Development
EDAD 3607 Advanced Legal and Ethical Aspects of Leadership
EDAD 3608 State and Local Educational Finance Policies
EDAD 3609 Seminar in Educational Leadership
EDAD 3610 Evaluation, Accountability, and Policy Analysis Models
EDAD 3640 Administrative Implications from Cognitive Psychology and Learning Theory
POLS 3603 Seminar in Cultural, Linguistic, and Political Borders

Directed electives: Students must choose a minimum of four courses (12 semester credit hours) from the list of courses below.

EDAD 3586 Educational Policy Development
EDAD 3612 Educational Leadership in Metropolitan Areas
EDAD 3613 Administration of Categorical Programs
EDAD 3614 School Business Management
EDAD 3615 Qualitative Research Methodology
POLS 3555 Seminar in Comparative Administration
EDAD 3619 Seminar in Special Services Administration
EDAD 3621 Multicultural Diversity in Educational Leadership

Internship:

EDAD 3650 Internship in Leadership I
EDAD 3651 Internship in Leadership II

Dissertation:

EDAD 3698 Dissertation Research
EDAD 3699 Dissertation Writing

EDUCATIONAL ADMINISTRATION (EDAD)

3510 Introduction to Educational Administration (3-0)
An introduction to the roles and functions of the school administrator emphasizing administrative and organizational theory and practice; identifies the primary knowledge, skills, and competencies required to be an effective school administrator. *Prerequisite:* Departmental approval.

3512 Instructional Leadership and Supervision I (3-0)
An introduction to the roles and responsibilities of the supervisor or school administrator as an instructional leader; emphasizes systematic classroom observation, evaluation of teaching, and clinical supervision. *Prerequisite:* EDAD 3510 or departmental approval.

3540 Human Factors in Education (3-0)
Treats interpersonal relations and human variables in groups and formal organizations with special emphasis on schools and organizations; identifies strategies for the school principal to improve work group effectiveness. *Prerequisite:* EDRS 3506, EDAD 3510, EDAD 3512, TED 3501, or departmental approval.

3542 Educational Law (3-0)
An introduction to the federal and state legal systems including constitutional provisions, federal and state regulations, and court decisions affecting public education; includes student and employee rights and responsibilities, statutory and assumed authority of school boards, relations with employee organizations, civil liability of school personnel, and elements of due process. *Prerequisite:* EDRS 3506, EDAD 3510, EDAD 3512, TED 3501, or departmental approval.

3544 Instructional Leadership and Supervision II (3-0)
Opportunity to develop the knowledge, skills, and competencies required by the supervisor or school administrator to direct instructional improvement programs; emphasis on instructional management, staff development, in-service workshops, and working with groups. *Prerequisite:* EDAD 3512.

3546 Educational Program Planning and Evaluation (3-0)
Opportunity to develop the knowledge, skills, and competencies required to plan and manage regular and special school programs; includes policy formulation, goal setting, and evaluation

emphasizing data-based management systems; requires field-based component. *Prerequisite:* EDRS 3506, EDAD 3510, EDAD 3512, TED 3501, or departmental approval.

3548 Administration of School Personnel and Services (3-0)
Emphasizes school management tasks and responsibilities related to certified and non-certified staff including position descriptions, recruitment, selection, assignment, and compensation; treats E.E.O. regulations, due process, grievance handling, and other legal requirements including collective bargaining. *Prerequisite:* EDRS 3506, EDAD 3510, EDAD 3512, TED 3501, or departmental approval.

3565 Directed Individual Study (0-0-3)
Area of study will be designated. May be repeated for credit when topic varies. *Prerequisite:* Departmental approval.

3570 Graduate Workshop In Educational Administration and Supervision (0-0-6)
Selected topics for graduate students, supervisors, and school administrators in such areas as grant writing, school discipline, computer utilization, and other special problems. May be repeated for credit when topic varies. *Prerequisite:* EDRS 3506, EDAD 3510, EDAD 3512, TED 3501, or departmental approval.

3573 School Supervision Internship I (1-0-4)
First half of a two-course sequence including planned field experience and seminars for the Professional Instructional Supervisor Certificate candidate; field experience includes working with a fully certified cooperating administrator under the supervision of a university professor; includes consideration of problems relating to assessment techniques, teacher review, consulting skills, and planning and evaluation of programs and materials. *Prerequisites:* Completion of all other course work required for the supervision certificate and departmental approval.

3574 School Supervision Internship II (1-0-4)
Continuation of EDAD 3573. *Prerequisites:* EDAD 3573 and departmental approval.

3575 School Management Internship I (1-0-4)
First half of a two-course sequence including planned field experience and seminars for the professional Mid-Management School Administrator Certification candidate; field experience includes working with a fully certified cooperating administrator in elementary, middle, and high school setting under the supervision of a university professor; includes administration of special programs, community education programs, student services, discipline management, scheduling, budgeting, and school business management; offered Fall Semester only. *Prerequisites:* Completion of all other course work required for the mid-management certificate and departmental approval.

3576 School Management Internship II (1-0-4)
Continuation of EDAD 3575; offered Spring Semester only. *Prerequisites:* EDAD 3575 and departmental approval.

3580 Organizational Development in Education (3-0)
Describes the systems approach to the renewal of educational organizations; emphasizes institutionalization of organization development in school districts and essential competencies for organization renewal. *Prerequisite:* Departmental approval.

3582 Educational Finance (3-0)
Basic concepts of the economics of education; uses the systems approach to analyze the issues of equity and equality in educational resource allocation and distribution; includes current Texas state funding policies. *Prerequisite:* Departmental approval.

3584 Educational Facilities Management (3-0)
Identifies the knowledge, skills, and competencies required of the school administrator to manage educational facilities; includes population projections and needs assessments, planning developing educational specifications, site selection, capital outlay, and costs; covers rehabilitating existing buildings, maintenance and operations, and equipment management. *Prerequisite:* Departmental approval.

3586 Educational Policy Development (3-0)
Treats the techniques of describing and selecting among alternative problem solutions based on quantifiable predictions; application to both general and specific educational issues including socio-political factors. *Prerequisite:* Departmental approval.

3588 Central Office Administration (2-0-2)
Critical aspects of central office administration including personnel, programs, budget, planning, evaluation, school board relations, state and federal influences, and general administration of a school district; field experience required. *Prerequisite:* Departmental approval.

3589 School Superintendent Internship (1-0-4)
Planned field experience and seminars for the Professional School Superintendent Certificate candidate; field experience includes working with a fully certified cooperating administrator in school and central office settings under the supervision of a university professor; includes consideration of problems relating to overall school district operations. *Prerequisites:* Completion of all other course work required for the superintendent certificate and departmental approval.

3601 Historic and Philosophical Foundations of Education (3-0)
This course is organized around four central themes: 1) the moral dimensions of teaching and enculturation of the young in a democracy; 2) problems of access to knowledge; 3) the notion of pedagogical nurturing; and 4) the stewardship of schools in educative communities. Key readings include selections from Plato, Rousseau, Dewey, and Goodlad. *Prerequisite:* Departmental approval. Corequisites: EDAD 3602, EDAD 3603, and EDAD 3604.

3602 Advanced Research Design and Data Analysis (3-0)
This course focuses on the use of quantitative research, data analysis, and inferential statistics in problem-solving in educational leadership. Applications of experimental or non-experimental research design, operational definitions, instrumentation, sampling methodology, hypothesis testing, and management and statistical analysis of large scale data bases will be examined. Data collection and analysis methods will include interviews, focus group questions, surveys, regression, path analysis, and analysis of variance. *Prerequisite:* Departmental approval. Corequisites: EDAD 3601, EDAD 3603, and EDAD 3604.

3603 Seminar in Decision-Making and Problem Solving in Education (3-0)
Students will examine and conduct research about decision-making processes from the perspectives of educational institutions at local, state, and national levels. *Prerequisite:* Departmental approval. Corequisites: EDAD 3601, EDAD 3602, and EDAD 3604.

3604 Organizational Theory and Development (3-0)
This course focuses on change and reform in education and the theories and professional practices used to create organizational change. *Prerequisite:* Departmental approval. Corequisites: EDAD 3601, EDAD 3602, and EDAD 3603.

3607 Advanced Legal and Ethical Aspects of Leadership (3-0)
This course examines the legal and ethical issues that face educational leaders, including responsibilities, accountability, the public interests, and professionalism. Students will also analyze and synthesize the judicial interpretations of constitutions, statutes, rules, and regulations, and the common law with special focus on individual student's interests. *Prerequisites:* EDAD 3601, EDAD 3602, EDAD 3603, EDAD 3604, and departmental approval.

3608 State and Local Educational Finance Policies (3-0)
Examination of research, as well as theoretical and practical foundations of economic and social accountability in educational organizations. Students will conduct comparative analyses of state educational finance policies, with emphasis on the relationships between the principles of accountability, adequacy, equity, and quality. *Prerequisites:* EDAD 3601, EDAD 3602, EDAD 3603, EDAD 3604, and departmental approval.

3609 Seminar in Educational Leadership (3-0)
Focus on alternative leadership styles and theories of leadership. Students will learn how to assess their own basic and preferred leadership styles. Each student will be encouraged to develop a personal growth plan in educational leadership. *Prerequisites:* EDAD 3601, EDAD 3602, EDAD 3603, EDAD 3604, and departmental approval.

3610 Evaluation, Accountability, and Policy Analysis Models (3-0)
Students will learn to use appropriate multiple indicators and analytic frameworks for documenting, measuring, and evaluating changes in educational policy and practice. *Prerequisites:* EDAD 3601, EDAD 3602, EDAD 3603, EDAD 3604, and departmental approval.

3612 Educational Leadership in Metropolitan Areas (3-0)
This course examines the social, economic, and political characteristics of urban communities and the relationship of education to social settings. The role of leadership, interest groups, and pressure groups is examined, as are the conversion processes and conflict resolution in a context of large, complex urban/minority school districts and the creation of alternative delivery systems. *Prerequisites:* EDAD 3601, EDAD 3602, EDAD 3603, EDAD 3604, and departmental approval.

3613 Administration of Categorical Programs (3-0)
This course examines the leadership roles in securing, administering, and evaluating categorical programs, sponsored projects, and grants. Guest lecturers will include directors of large projects. Team taught. *Prerequisites:* EDAD 3601, EDAD 3602, EDAD 3603, EDAD 3604, and departmental approval.

3614 School Business Management (3-0)
This course examines current and emerging financial management practices which optimize school resource utilization. The course places balanced emphasis on practical applications, and legal and ethical implications of financial management practices. *Prerequisites:* EDAD 3601, EDAD 3602, EDAD 3603, EDAD 3604, and departmental approval.

3615 Qualitative Research Methodology (3-0)
Students will examine qualitative and ethnographic research methods, including participant observation and open-ended interviewing to address problems of educational organizations. *Prerequisites:* EDAD 3601, EDAD 3602, EDAD 3603, EDAD 3604, and departmental approval.

3619 Seminar in Special Services Administration (3-0)
Students will examine the models of special services program administration in various educational organizations. Emphasis will be placed on the view of change in educational organizations that emerge from various perspectives on the education and management of special populations. *Prerequisites:* EDAD 3601, EDAD 3602, EDAD 3603, EDAD 3604, and departmental approval.

3621 Multicultural Diversity in Educational Leadership (3-0)
Students will examine the impact of multicultural pluralism and diversity and how these concepts and practices impact leadership and administration in educational settings. *Prerequisites:* EDAD 3601, EDAD 3602, EDAD 3603, EDAD 3604, and departmental approval.

3640 Administrative Implications from Cognitive Psychology and Learning Theory (3-0)
Implications from cognitive psychology and learning theory for students learning in multicultural diverse urban contexts of schooling. The course examines classical and contemporary learning theories as they affect program changes in schools and other educational settings. *Prerequisites:* EDAD 3601, EDAD 3602, EDAD 3603, EDAD 3604, and departmental approval.

3650 Internship in Leadership (0-0-3)
With the joint guidance of a university faculty member and a practicing leader/administrator in an educational setting, students will be provided opportunities for supervised research and decision-making in a professional setting. *Prerequisite:* Permission of the graduate advisor.

3651 Internship in Leadership II (0-0-3)
The second semester of internship will provide continuation of supervised research and decision-making in a professional setting. *Prerequisites:* EDAD 3650 and permission of the graduate advisor.

3698 Dissertation Research (0-0-3)
Under the direction of their dissertation committee chair, students will prepare a dissertation proposal. Continuous registration is required until the proposal is approved by the doctoral committee. *Prerequisite:* Admission to doctoral candidacy and permission of Doctoral Committee Chair.

3699 Dissertation Writing (0-0-3)
Students, under the direction of the dissertation committee chair, will write a dissertation. Continuous registration is required until the dissertation has been successfully defended and is accepted by the dissertation committee. *Prerequisites:* EDAD 3698 and departmental approval.

EDUCATIONAL RESEARCH AND STATISTICS (EDRS)

3505 Educational Research and Statistics I (3-0)
First of a two-course sequence to develop interrelated concepts and skills of research methods, experimental design in education, and statistical methods; includes computer applications and required computer laboratory; requires development of a formal research proposal.

3506 Educational Research and Statistics II (3-0)
Second course in a two-course sequence, includes survey research methods, computer application and required computer laboratory; requires preparation of a formal research report. *Prerequisite:* EDRS 3505 with grade of "C" or better.

3540 Advanced Statistics (3-0)
Review of experimental design and computer applications; includes linear regression, multivariate analysis; with an introduction to nonparametric techniques. *Prerequisite:* EDRS 3506.

Educational Psychology and Special Services

701 Education Building
(915) 747-5221

CHAIRPERSON: Norma G. Hernandez
GRADUATE FACULTY: Combs, Hammond, Hernandez, Ingalls, Lloyd, Wood

GRADUATE PROGRAMS AND PLANS

The Educational Psychology and Special Services Department offers two graduate degrees. The Master of Arts in Education degree is designed for students wishing to pursue research and to continue studies beyond the master's degree level. The Master of Education degree is directed toward the professional who wishes to prepare for specialized professional practice as a school or community counselor, educational diagnostician, or special educator.

In addition to these degree programs, the Department offers course work leading to School Counselor and Educational Diagnostician certification by the Texas Education Agency and the Special Education Counseling endorsement. Additionally, completion of the Master of Education in Guidance and Counseling (School Counseling Emphasis or Community Counseling Emphasis) prepares the student with the academic course work necessary for licensure as a professional counselor in Texas.

MASTER OF ARTS IN EDUCATION

The Master of Arts degree is designed for students who wish to pursue research and to continue studies beyond the master's degree

level. Students may work with the Department of Educational Psychology and Special Services, specifically in the areas of Educational Diagnostician, Guidance and Counseling, and Special Education, to develop a plan of study.

This thirty-semester hour thesis program is described under The College of Education. Six to twelve hours of course work may be taken in a related discipline of which at least three semester hours must be taken in residence. Students must make an appointment with a Department Faculty Advisor: (915) 747-5300.

MASTER OF EDUCATION

The Educational Psychology and Special Services Department offers the MEd degree with the following majors:

Educational Diagnostician

Guidance and Counseling (School or Community)

Special Education

Admission Requirements

Students seeking admission to a graduate program in the Department must:

1. Complete a Graduate School application and qualify for admission to the Graduate School;
2. Achieve a satisfactory score on the Graduate Record Examination;
3. In addition to the above, the Department requires a departmental application to include a writing sample, a statement of related work experience, and letters of reference.
4. Students applying to the Guidance and Counseling program must submit the Departmental application by February 15th for admission to course work beginning the following summer or fall term only. Students will be interviewed prior to acceptance into the program.

Additional admission requirements may be specified (see below).

Educational Diagnostician

This program is intended primarily for students who have concentrated their previous academic work in Special Education. Texas Provisional Teaching Certificate (with TECAT or equivalent) is required. The student should confer with the Graduate Advisor to determine additional requirements for TEA certification as a Professional Educational Diagnostician.

Additional Admission Requirements

Completion of a minimum of twelve semester hours of upper division work in advanced Professional Special Education with a grade of "B" or better (to include three semester hours of Human Growth and Development). Three years of classroom teaching experience is also required.

Program (36 semester hours)

EDPC 3535 Principles of Appraisal and Assessment
EDPC 3536 Advanced Appraisal and Assessment
EDPC 3540 Theories of Learning
EDPC 3544 Use and Interpretation of Standardized Tests
EDPC 6523 Internship for Educational Diagnostician
SPED 3520 Special Education: Historical and Legal Basis
SPED 3522 The Bilingual Exceptional Child
SPED 3545 Remediating Students with Learning Disabilities
SPED 3547 Parents of Exceptional Children
SPED 3548 Differential Diagnosis of Handicapping Conditions
Approved three semester hours in EDPC, SPED, or PSYC

Comprehensive Examination

Written comprehensive examination. *Prerequisite:* Completion of all required courses, or permission of Department. ExCET (Exam for the Certification of Educators in Texas) also required.

Certification

ExCET (Exam for the Certification of Educators in Texas)

Total: 36 semester hours

Guidance and Counseling

School Counseling Emphasis

This plan is intended primarily for those wishing to be public school counselors.

Additional Admission Requirements

Completion of a minimum of nine semester hours of undergraduate upper-division course work in Professional Education or Behavioral Science (Psychology, Social Work, Sociology) with grades of "B" or better (must be completed prior to admission to program) **and**, in addition, completion of SPED 3520.

Core Requirements (6 semester hours)

EDPC 3517 Human Growth and Development
EDPC 3541 Theories of Counseling

Specialization (27 semester hours)

EDPC 3520 Life Style and Career Development
EDPC 3521 School Counseling
EDPC 3538 Group Counseling
EDPC 3539 Techniques of Counseling
EDPC 3545 Abnormal Human Behavior
EDPC 3546 Social and Cultural Aspects of Counseling
EDPC 3547 Substance Abuse: Current Theory and Practice
EDPC 3560 Marriage and Family Counseling
EDPC 3562 Child and Adolescent Counseling

Related Area (6 semester hours)

EDRS 3505 Educational Research and Statistics I
EDPC 3535 Principles of Appraisal and Assessment

Clinical Sequence (9 semester hours)
(May not be taken concurrently)

EDPC 3571 Counseling Practicum
EDPC 3572 Internship I
EDPC 3573 Internship II

Comprehensive Examination

Departmental approval during final semester.

Total: 48 semester hours

For School Counselor Certification

In addition to the completion of the 48 hours master's degree program:

a. Valid Texas Teaching Certificate (with TECAT or equivalent)
b. Three years classroom teaching experience
c. Satisfactory completion of the Examination for Certification of Educators in Texas (ExCET) for School Counselors

For Licensure

For licensure as a Professional Counselor in Texas, in addition to the 48 hours Master's Program:

a. 2,000 clock hours of supervised experience and
b. Satisfactory completion of the Texas State Board Examination of Professional Counselors.

Community Counseling Emphasis

This plan is intended primarily for those wishing to be community counselors in public and private agency or hospital settings.

Additional Admission Requirements

Completion of twelve semester hours of undergraduate upper-division course work in Professional Education or Psychology with grades of "B" or better (must be completed prior to admission to program).

Core Requirements (6 semester hours)

EDPC 3517 Human Growth and Development
EDPC 3541 Theories of Counseling

Specialization (27 semester hours)

EDPC 3520 Life Style and Career Development
EDPC 3538 Group Counseling
EDPC 3539 Techniques of Counseling

EDPC 3545 Abnormal Human Behavior
EDPC 3546 Social and Cultural Aspects of Counseling
EDPC 3547 Substance Abuse: Current Theory and Practice
EDPC 3560 Marriage and Family Counseling
EDPC 3562 Child and Adolescent Counseling
EDPC Graduate Elective

Related Area (6 semester hours)
EDRS 3505 Educational Research and Statistics I
EDPC 3535 Principles of Appraisal and Assessment

Clinical Sequence (9 semester hours)
(May not be taken concurrently)
EDPC 3571 Counseling Practicum
EDPC 3572 Internship I
EDPC 3573 Internship II

Comprehensive Examination
Departmental approval during final semester.

For Licensure
For licensure as a Professional Counselor in Texas, in addition to the 48 hours Master's Program:
a. 2,000 clock hours of supervised experience and
b. Satisfactory completion of the Texas State Board Examination of Professional Counselors.

Total: 48 semester hours

Special Education

This plan is intended primarily for students who have concentrated their previous academic work in any area of education. The student should confer with the Graduate Advisor to determine which specialization he or she will pursue.

Additional Admission Requirements
Valid Texas Teaching Certificate with TECAT or equivalent; three years of teaching experience; all Options require a valid Texas Teaching Certificate in Generic Special Education.

Core Requirements (18 semester hours)
EDRS 3505 Educational Research and Statistics I
EDRS 3506 Educational Research and Statistics II
SPED 3520 Special Education: Historical and Legal Basis
SPED 3522 The Bilingual Exceptional Child
PSYC 3547 Advanced Behavior Technology
SPED 3547 Parents of Exceptional Children

Specialization (18 semester hours in only one of the following options)

*Learning Disabled (Option 1)
EDPC 3535 Principles of Appraisal and Assessment
SPED 3545 Remediating Students with Learning Disabilities
SPED 3563 Intervention for the Severely Emotionally Disturbed
SPED 3567 Characteristics of Students with Learning Disabilities
SPED 3569 Teaching the Learning Disabled in Reading
SPED 3570 *Teaching Secondary Students with Mild Handicaps*

*Severely Emotionally Disturbed (Option 2)
SPED 3561 Nature and Needs of the Severely Disturbed
SPED 3563 Interventions for the Severely Emotionally Disturbed
SPED 3567 Characteristics of Students with Learning Disabilities
SPED 3569 Teaching the Learning Disabled in Reading
SPED 3573 Teaching Students with Autism
SPED 3579* Practicum in Special Education

* Practicum will be required also in Options 1 and 2 if the student has no teaching experience in Special Education.

Comprehensive Examination
Written comprehensive examination. *Prerequisite:* Completion of all required courses, or permission of the Department.

Total: 36 semester hours

ENDORSEMENT

Special Education Counseling Endorsement

This plan is primarily for students who have completed the School Counselor's program and wish to obtain the additional endorsement as a counselor for exceptional children.

Admission Requirements
Completion of all requirements in the School Counseling program and three years of teaching experience, at least one of which is in special education.

Program (12 semester hours)
SPED 3547 Parents of Exceptional Children
SPED 3561 Nature and Needs of the Severely Emotionally Disturbed
SPED 3563 Interventions for the Severely Emotionally Disturbed
SPED 3567 Characteristics of Students with Learning Disabilities

Total: 12 semester hours

A special certification plan must be on file and fee paid to the Certification Office.

EDUCATIONAL PSYCHOLOGY AND COUNSELING (EDPC)

1570 Special Topics in Educational Psychology and Counseling (1-0)
Selected topics for graduate students, teachers, school counselors, and agency counselors in special areas. May be repeated when topic varies. *Prerequisite:* Departmental approval.

3517 Human Growth and Development (3-0)
Descriptive analysis of the typical patterns of human physical, social, emotional, moral, intellectual, cognitive, and personality growth and development.

3519 Organization and Administration of Special Services (3-0)
Identification and analysis of problems of organization and administration of guidance services including staffing, finances, effective interpersonal relationships, community participation, in-service education, and evaluation of programs. Strategies to improve group work with special emphasis on interpersonal relations and human variables in groups and organizations.

3520 Life Styles and Career Development (3-0)
An overview of the various theories of career counseling. Emphasis on incorporating an understanding of what is accomplished by career, vocational, and occupational counseling. The connection between career choice and life style development will be examined. *Prerequisite or Concurrent Enrollment:* EDPC 3517 and EDPC 3541.

3521 School Counseling (3-0)
Analysis of the organization and administration of school counseling programs and services as defined and described in the comprehensive guidance plan for Texas public schools. Emphasis on individual and group counseling with students within the public school context. *Prerequisite or Concurrent Enrollment:* EDPC 3517 and EDPC 3541.

3535 Principles of Appraisal and Assessment (3-0)
Principles of psychological testing including purposes, methods, and procedures; analysis, evaluation, and administration of educational and psychological instruments.

3536 Advanced Appraisal and Assessment (3-0)
Analysis, evaluation, and administration of individual instruments such as Stanford-Binet Intelligence Scale, and two of the Wechsler Tests (WAIS, WISC-R, WPPSI); includes preparation of individualized professional reports. *Prerequisite:* EDPC 3535.

3538 Group Counseling (3-0)
Description of the history, principles, theories, and techniques of group counseling. Emphasis on communication process, curative factors, stages of group development, and therapeutic leadership, to include techniques, skills, and styles unique to the group process. Restricted to Counseling major. *Prerequisites:* EDPC 3517 and EDPC 3541 and departmental approval.

3539 Techniques of Counseling (3-0)
Focus on the development and effective use of skills and techniques basic to the process of individual counseling as derived from the major theories of counseling. To be taken during the semester immediately preceding enrollment in EDPC 3571. Restricted to Counseling majors. *Prerequisite:* EDPC 3538 with grade "B" or better and departmental approval.

3540 Theories of Learning (3-0)
Analysis and application of learning theories, including cognitive, behavioristic, social, and emotional learning processes in human development, with special emphasis on children and adolescents.

3541 Theories of Counseling (3-0)
Study and analysis of the major affective, cognitive, and behavioral theories and therapeutic approaches to counseling. Emphasis on historical perspectives and practical application. *Prerequisite:* Admission to counseling program.

3542 Psychology of Individual Differences (3-0)
The study of individual differences in intelligence, personality, motivation, attitudes, language, culture, and gender and their effects on development and learning.

3544 Use and Interpretation of Standardized Tests (3-0)
Identifies techniques and procedures to interpret results of various commonly used standardized tests and other procedures to diagnose learning problems; emphasis on the use of data to treat disabilities and develop potentialities. *Prerequisite:* EDPC 3535.

3545 Abnormal Human Behavior (3-0)
A study of the development of abnormal human behavior patterns and characteristics to include the major mental and personality disorders with emphasis on the symptomatology and/or life circumstances and events described in the various diagnostic categories. *Prerequisites:* EDPC 3517 and EDPC 3541.

3546 Social and Cultural Aspects of Counseling (3-0)
A study of societal changes and trends, human role, societal subgroups, social mores and interaction patterns, and differing life styles. Focus on social/cultural characteristics and concerns of subgroups and the application to multicultural counseling. *Prerequisites or Concurrent Enrollment:* EDPC 3517 and EDPC 3541.

3547 Substance Abuse: Current Theory and Practice (3-0)
Designed as an introduction to the field of substance use and/or abuse in the United States. Etiological theories and current forms of treatment, prevention, and research will be highlighted. *Prerequisites or Concurrent Enrollment:* EDPC 3517 and EDPC 3541.

3560 Marriage and Family Counseling (3-0)
A study of the major theoretical approaches to marriage and family counseling. Emphasis on the individual's role in the family of origin and family of procreation and how family systems approaches to therapy impact each individual within the family. *Prerequisites:* EDPC 3517 and EDPC 3541.

3562 Child and Adolescent Counseling (3-0)
A focus on the dynamics, problems, and practical aspects underlying the behavior of children and adolescents; provides a wide variety of intervention and treatment aspects for children and adolescents in counseling. *Prerequisites:* EDPC 3517 and EDPC 3541.

3565 Directed Individual Study (0-0-3)
Area of study will be designated. May be repeated for credit when topic varies. *Prerequisite:* Departmental approval.

3570 Special Topics in Educational Psychology and Counseling (3-0)
Selected topics for graduate students, teachers, school counselors, and agency counselors in special areas. May be repeated when topic varies. *Prerequisite:* Departmental approval.

3571 Counseling Practicum (3-0)
Focuses on the study of professional counseling organizations, legal and ethical aspects of practice, standards of preparation, and role identity of persons providing direct counseling services. Includes training in basic clinical skills using intense role playing and/or actual work with clients. To be taken during last semester of formal course work, immediately preceding enrollment in Internship I. *Prerequisites:* EDPC 3538 and EDPC 3539 each with grade "B" or better and departmental approval.

3572 Counseling Internship I (0-0-3)
Practical application of counseling theories and techniques in a community or school setting. Students are required to complete 150 hours of supervised on-site experience. *Prerequisites:* Satisfactory completion of EDPC 3571 based on pass/fail grading option and departmental approval.

3573 Counseling Internship II (0-0-3)
Advanced experience in the application of counseling theory and techniques in a school or community setting. Students will be required to complete a minimum of 150 hours of supervised on-site experience. *Prerequisites:* Satisfactory completion of EDPC 3572 based on pass/fail grading option and departmental approval.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on thesis continues. *Prerequisite:* EDPC 3598.

6523 Internship in Educational Diagnostician (0-0-6)
Supervised experience in public schools working with educational diagnosticians. Includes comprehensive assessments, preparation of written reports of assessment and other required paperwork, attendance at ARDs and presentation of test data and interpretation. Comprehensive assessments cover a variety of handicapping conditions. *Prerequisite:* Completion of all core and specialization requirements with a grade of "B" or better, and departmental approval.

SPECIAL EDUCATION (SPED)

3520 Special Education: Historical and Legal Basis (3-0)
Emphasis on litigation, legislation, and laws pertaining to definitions of exceptional children including learning and behavior disorders, physical, mental, and sensory handicaps and the exceptionally gifted and talented student.

3522 The Bilingual Exceptional Child (3-0)
Focuses on the bilingual exceptional child, and provides information on how to teach students of limited English proficiency and multi-cultural background who are assigned to special education classes.

3545 Remediating Students with Learning Disabilities (3-0)
Focuses on the role of the special educator in providing services to students with disabilities in the least restrictive settings. Incorporates strategies in team building, collaborative planning, and implementation as well as instruction in curricular and instructional modifications. *Prerequisite:* SPED 3520.

3547 Parents of Exceptional Children (3-0)
Relevant approaches and techniques for teachers to work with parents of exceptional children; includes strategies for developing knowledge and skills associated with facilitating child growth by cooperative home-school planning. *Prerequisite:* SPED 3520.

3548 Differential Diagnosis of Handicapping Conditions (3-0)
Diagnosis of and state eligibility criteria for all handicapping conditions with emphasis on the learning disabled, mentally retarded, and emotionally disturbed student. Focuses on factors affecting diagnosis and eligibility including language, culture, lifestyle, and educational background. *Prerequisite:* SPED 3520.

3550 Special Topics in Special Education (3-0)
Selected topics for graduate students and teachers in special areas. May be repeated when topic varies. *Prerequisites:* SPED 3520 and departmental approval.

3561 Nature and Needs of the Severely Disturbed (3-0)
Focuses on the theory and symptomatology of children with severe emotional disturbances; provides a cross section of information on current research related to identification, differential diagnosis, psychogenic and physiological factors, intervention programs, and teaching strategies. *Prerequisite:* SPED 3520.

3563 Intervention for the Severely Emotionally Disturbed (3-0)
Focuses on methods for promoting behavior change and facilitating affective development of children who are emotionally impaired/behaviorally disordered; provides a wide variety of intervention strategies. *Prerequisite:* SPED 3520 and SPED 3561 or departmental approval.

3567 Characteristics of Students with Learning Disabilities (3-0)
Focuses on the various theoretical, etiological, sociological, and behavioral approaches to the understanding of children with language and learning disabilities. Emphasis is on the characteristics of this population and assessment strategies. *Prerequisite:* SPED 3520.

3569 Teaching the Learning Disabled in Reading (3-0)
Focuses on learning disabled students; provides information on how to teach learning disabled students decoding, word attack, comprehension, and other skills in reading; includes assessment of learning disabled students in reading difficulties. *Prerequisite:* SPED 3520 and SPED 3567.

3570 Teaching Secondary Students with Mild Handicaps (3-0)
Focuses on learning disabled students; provides information on how to teach the secondary learning disabled student word attack, comprehension, content subject mastery, and the study skills. *Prerequisite:* Twelve graduate semester hours in special education (SPED) or departmental approval.

3571 Teaching the Severely Handicapped Child (3-0)
Characteristics of young, elementary, and adolescent severely handicapped students including assessment, program development, teaching methodology, and design of learning environments; includes programming in social help, self-help, motor, and language skills and reviews content in reading, mathematics, and related functional academic skills. *Prerequisite:* Twelve graduate semester hours in special education (SPED) or departmental approval.

3573 Teaching Students with Autism (3-0)
Characteristics of young children, elementary, and adolescent severely handicapped students with autism including assessment, program development, teaching methodology, and intervention techniques; includes programming for self-help, motor and language skills, reading, mathematics, and functional academic skills. *Prerequisite:* Twelve graduate semester hours in special education (SPED) or departmental approval.

3579 Practicum in Special Education (3-0)
Supervised experience in the direct teaching of students with disabilities. *Prerequisites:* Twelve graduate semester hours in special education (SPED) and departmental approval.

Teacher Education

601 Education Building
(915) 747-5426

CHAIRPERSON: James L. Milson

GRADUATE ADVISOR: Milagros M. Seda

GRADUATE FACULTY: Ainsa, Arenz, Ball, Bixler-Marquez, Blake, Descamps, Gonzalez, Hurley, Izquierdo, Kies, Klingstedt, Milson, Sanchez, Seda, Shin, Tinajero

The Teacher Education Department offers graduate programs of interest to teachers and to others who desire to acquire advanced professional education skills for application in school and non-school settings.

Students who wish to pursue graduate degrees in Teacher Education may select from two programs. The Master of Arts in Education is designed for students wishing to pursue research and to continue studies beyond the master's degree level. The Master of Education degree is directed toward mastery of professional education practice.

MASTER OF ARTS IN EDUCATION

The Master of Arts in Education is designed for students wishing to pursue research and to continue studies beyond the master's degree. Students may work with the Department of Teacher Education, specifically in the areas of either Instructional Specialist or Reading Education to develop a plan of study.

This thirty-semester hour thesis program is described under The College of Education. Six to twelve hours of course work may be taken in a related discipline of which at least three semester hours must be taken in residence. Students must make an appointment with a Department Faculty Advisor: (915) 747-5300.

MASTER OF EDUCATION

Admission Requirements: At least 12 semester hours of undergraduate upper division education courses, a satisfactory score on the Graduate Record Examination, and admission to the MEd program.

Program: Thirty-six semester hours, including at least 27 semester hours at the 0500 level. All 0300 and/or 0400 level work proposed for inclusion in this graduate degree must be recommended for approval by the program Graduate Advisor.

Students wishing to pursue the Master of Education degree may do so through majors in Curriculum Specialist, Instructional Specialist, or Reading Education. Students whose professional needs are not met by these majors may major in Education and plan a special program around those needs; students should contact the program Graduate Advisor for information and assistance. Specific information on the other two majors is presented below.

Final Comprehensive Examination and Scholarly Paper: A written comprehensive examination, satisfactory to the Graduate Faculty of the Unit, must be completed before the degree will be awarded. All MEd degree candidates will be expected to write several scholarly papers, one of which must be presented to the Graduate Advisor for inclusion in the student's file.

Instructional Specialist

In this major, students may choose to concentrate course work in the areas of elementary education, secondary education, early childhood education, bilingual education, or health and physical education. Subject matter emphases, e.g., mathematics or history, may occur within elementary or secondary concentrations.

Concentration	At least twelve semester hours of graduate level courses in a subject area for which the candidate has prior certification or in a subject area approved by the Graduate Advisor of the Unit.
Professional Development	TED 3500, 3501, 3502, and 3503.
Resource Area	Six semester hours in courses approved for graduate credit which provide support for the academic specialization area or for professional development.
Electives	Six semester hours in courses approved for graduate credit.

At least twelve semester hours must apply to one of the specified concentrations.

Reading Education

This program major leads to an All-Levels Reading Certificate. Students interested in a concentration in reading but not at all levels should pursue the Instructional Specialist major with an elementary concentration and stress reading.

Specialization Area	At least twelve semester hours of graduate level courses in reading.
Professional Development	TED 3500, 3501, 3502, and 3503
Resource Area	SOCI 3575 and three semester hours of Linguistics

Students holding a Provisional Secondary Certificate also will need EDPC 3517.

Students holding a Provisional Elementary Certificate also will need SCED 3526 and EDPC 3517.

PROGRAM ADVISING

It is the responsibility of the student to consult the Graduate Advisor of the Department regarding admission and degree requirements. The student is expected to maintain a continuing advising relationship which includes preparing a degree plan, submitting a Preliminary Program of Study and a Final Program of Study, and requesting a comprehensive examination or thesis defense. The Department cannot assure that courses taken before admission and/or before degree plan preparation will apply to degree requirements.

TEACHER CERTIFICATION

This catalog does not cover teacher certification requirements. The College of Education Certification Office and the Graduate Advisor of the Department can provide more information in this area.

A degree program is not the same as a certificate program. Courses included in a program for a first teaching certificate typically are not applied toward a graduate degree. Courses included in a program for advanced certificates and certain endorsement programs may be applied toward a graduate degree, and most can be combined with a graduate degree program. However, a perfect match between state certification and degree requirements is not likely.

BILINGUAL EDUCATION (BED)

3530 Current Topics in Bilingual Education (3-0)
Opportunity to develop competencies necessary to deal effectively with bilingual education instruction; includes curriculum, concepts, teaching strategies, and skills necessary to integrate content and teaching strategies. May be repeated for credit when topic varies.

3531 Bilingual/Bicultural Curriculum Design and Development (3-0)
Identification of principles, problems, and issues affecting bilingual curriculum. Examination of rationale and philosophies of various models of bilingual education programs. *Prerequisites:* ELED 3302.

3532 Teaching Reading in Spanish (3-0)
Fundamental principles for teaching reading in Spanish to Spanish-dominant children. Examination of classroom reading materials representative of various bilingual reading programs and development of criteria for the selection of materials appropriate for various types of bilingual reading classes. *Prerequisites:* RED 3340.

3533 Oral Language Assessment (3-0)
Analysis of oral language tests and procedures, and their application to the bilingual classroom.

3534 Teaching Content in Spanish (3-0)
Analysis and evaluation of Spanish curriculum materials in the content areas. Emphasis on the development of methods for teaching content in Spanish using specialized language at various levels.

EARLY CHILDHOOD EDUCATION (ECED)

3550 Current Topics in Early Childhood Education (3-0)
Development of competencies necessary to deal effectively with early childhood instruction; includes curriculum, concepts, teaching strategies, and skills necessary to integrate content and teaching strategies. May be repeated for credit when topic varies.

3551 Trends in Early Childhood Education (3-0)
Research related to philosophies, objectives, and practices in early childhood education, including analysis through comparison and contrast of preschool programs, plus implications for designing such programs based on research and evaluation.

3552 Seminar in Early Childhood Curriculum (3-0)
Curriculum development for the early childhood teacher which includes program design, activity planning, examination and construction of materials, and teaching and evaluation techniques.

3553 Development of Literacy Skills, Preschool to Grade 3 (3-0)
Emergent reading and writing behaviors in preschoolers; growth of reading and writing, kindergarten to grade three; attention to linguistically different and second-language learners, review of relevant research.

3554 Development of Mathematics and Science Foundations, Preschool to Grade 3 (3-0)
Preschool awareness of quantitative and scientific principles in the environment as a foundation for concept growth.

ELEMENTARY EDUCATION (ELED)

3520 Instructional Problems (Elementary)--Seminar (3-0)
Identification of problems affecting instruction in the elementary schools. Examination of literature for solutions to these problems. May be repeated for credit when topic varies.

READING EDUCATION (RED)

3540 Current Topics in Reading Education (3-0)
Opportunity to develop competencies necessary to deal effectively with reading instruction; includes curriculum, concepts, teaching strategies, and skills necessary to integrate content and teaching strategies. May be repeated for credit when topic varies.

3541 The Diagnostic Teaching of Reading (3-0)
Standardized and informal materials and techniques of diagnosing the reading strengths and weaknesses of individuals and groups, techniques and materials for building specific reading abilities, and methods of individualizing instruction and grouping according to student needs and interests. *Prerequisite:* RED 3340 or RED 3342.

3544 Seminar in Reading (3-0)
In-depth exploration of ways of developing higher level cognitive, affective, psychomotor, and psycholinguistic abilities of students through the use of printed materials and other media. Individual and/or group creative projects and research findings will be shared. *Prerequisite:* RED 3340 or RED 3342.

3545 Remedial Reading (3-0)
Operation and administration of remedial reading programs, including the screening procedures for selection of students as well as criteria for selecting and designing materials suitable for use in remedial reading. Strategies for counseling and teaching disabled readers are also emphasized. *Prerequisite:* RED 3340 or 3342.

3546 Clinical Diagnosis of Reading Difficulties (3-0)
Comprehensive study of, and clinical practice in, the diagnosis of specific, limiting, and complex cases of reading disability. Offers the opportunity for experience in administering and interpreting batteries of diagnostic tests and in the analysis and synthesis of findings for case studies. *Prerequisite:* RED 3340 or RED 3342.

3547 Clinical Reading Laboratory Experience (2-1)
Actual laboratory experience for application of concepts, media, and evaluation to meet the needs of disabled readers. May be repeated for credit when topic varies. *Prerequisite:* RED 3441 or RED 3541 or RED 3546.

SECONDARY EDUCATION (SCED)

3525 Instructional Problems (Secondary)--Seminar (3-0)
Identification of problems affecting instruction in the secondary schools. Examination of literature for solutions to these problems. May be repeated for credit when topic varies.

3526 Curriculum in the Secondary School (3-0)
Curriculum in subject areas in the secondary school, and the development of plans and procedures for instruction. *Prerequisite:* TED 3501.

TEACHER EDUCATION (TED)

1514 Current Topics in Science Education (1-0)
Opportunity to develop competencies necessary to deal effectively with science instruction; includes curriculum, concepts, teaching strategies, and skills necessary to integrate content and teaching strategies. May be repeated for credit when topic varies.

1519 Graduate Workshop in Education (1-0)
Studies in a designated area. May be repeated for credit when topic varies.

2514 Current Topics in Science Education (2-0)
Opportunity to develop competencies necessary to deal effectively with science instruction; includes curriculum, concepts, teaching strategies, and skills necessary to integrate content and teaching strategies. May be repeated for credit when topic varies.

3500 Research for the Classroom Teacher (3-0)
Research methodology relating to the problems and needs of classroom teachers with major emphasis on interpreting professional literature and conducting classroom-based action research. A scholarly paper will be required. *Prerequisite:* Admission to, or completion of, a Master's degree program.

3501 Curriculum Theory and Design (3-0)
Theoretical foundations and principles of curriculum design. *Prerequisite:* Admission to, or completion of, a Master's degree program.

3502 Instructional Strategies and Classroom Management (3-0)
Decision-making methodologies and human interactions as they relate to classroom management.

3503 Construction and Use of Classroom Evaluation Instruments (3-0)
Construction and use of norm-referenced and criterion- referenced achievement measures for summative and formative evaluation. *Prerequisite:* Admission to, or completion of, a Master's degree program.

3505 Practicum in Instruction in Elementary and Secondary Schools (1-0-10)
Observation by the University instructor of the student's classroom teaching and seminars designed to relate the classroom instructional situation to corresponding educational theory. Designed to be concurrent with public school teaching. May be repeated once for credit. *Prerequisites:* A grade point average of at least 2.5 in each teaching field and in all education courses and departmental approval.

3513 Current Topics in Multicultural Education (3-0)
Opportunity to develop competencies necessary to deal effectively with multicultural education instruction; includes curriculum, concepts, teaching strategies, and skills necessary to integrate content and teaching strategies. May be repeated for credit when topic varies.

3514 Current Topics in Science Education (3-0)
Opportunity to develop competencies necessary to deal effectively with science instruction; includes curriculum, concepts, teaching strategies, and skills necessary to integrate content and teaching strategies. May be repeated for credit when topic varies.

3518 Current Topics in Mathematics Education (3-0)
Opportunity to develop competencies necessary to deal effectively with mathematics instruction; includes curriculum, concepts, teaching strategies, and skills necessary to integrate content and teaching strategies. May be repeated for credit when topic varies.

3519 Graduate Workshop in Education (3-0)
Studies in a designated area. May be repeated for credit when topic varies.

3522 Field Resources in Science Education (3-0)
Directed observation of selected field resources. Particular emphasis will be placed on the acquisition of knowledge that directly relates to the essential elements in the elementary, middle, and high school science curricula in Texas.

3523 Energy Education (3-0)
Offers the opportunity for experience with the content, materials, and teaching strategies used in energy education.

3596 Independent Graduate Studies (0-0-3)
Studies in an area of the student's choice that have been approved by the sponsoring professor. May be repeated for credit when topic varies. *Prerequisite:* Departmental approval.

3597 Practicum for Master Teachers (0-0-12)
Assessment and verification of the competencies in a practicum situation as required for the Master Teacher Certificate. *Prerequisite:* Admission to the Master's Degree program and possession of an initial teaching certificate.

3598 Thesis (0-0-3)
Initial work on the thesis. *Prerequisite:* Permission of Graduate Advisor of Program.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisite:* TED 3598 and permission of Graduate Advisor of Program.

College of Engineering

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

Dr. Andrew Swift, Interim Dean
Dr. Stephen Stafford, Associate Dean
Dr. Darrell Schroder, Assistant Dean

Engineering/Science Complex
Engineering Bldg., Room E230
Phone: (915) 747-5460
Fax: (915) 747-5616

The College of Engineering

The University of Texas at El Paso has a long-standing commitment to quality engineering education. Today the College of Engineering strives to educate engineers to formulate and solve the technical problems of today and tomorrow.

At the graduate level, the College fulfills its mission by offering graduate degree programs in all of its departments. Master of Science degrees are available in Civil Engineering, Computer Engineering, Computer Science, Electrical Engineering, Environmental Engineering, Industrial Engineering, Manufacturing Engineering, Mechanical Engineering, and Metallurgical and Materials Engineering. In addition to these programs, students may pursue an undesignated Master of Science in Engineering, with concentrations in a number of areas or a Master of Engineering degree in Environmental Engineering. A PhD degree in Computer Engineering is jointly offered by the Electrical and Computer Engineering and Computer Science departments. Multi-disciplinary PhD degrees are also awarded in Materials Science and Engineering and Environmental Science and Engineering and their program descriptions are provided under Interdisciplinary Studies.

DOCTOR OF PHILOSOPHY DEGREE IN COMPUTER ENGINEERING

Requirements for Admission—Students entering the program must have an undergraduate degree in electrical engineering or a closely related field. Students must apply for admission to the program through the Graduate School. PhD applicants must meet standard master's degree admission requirements and have a GPA of at least 3.50 in their master's degree program. Normally, a student must hold a master's degree before being granted admission to the PhD degree program. Some exceptional students may enter the PhD program immediately upon completion of their bachelor's degree. Minimum requirements for special admission are a 3.60 or better GPA from an ABET or CSAB accredited program and scores of at least 700 and 500, respectively, on the quantitative and verbal sections of the Graduate Record Exam.

Course Requirements—The specific course work required of each student will be determined by his/her Advisory Committee. However, each student must complete at least 90 credit hours beyond the bachelor's degree or at least 60 hours beyond the master's degree. Thirty semester credit hours are devoted to dissertation and research, the primary requirement of the degree.

Each student's course work must include:

(1) At least three courses from the following:
EE 3500 Advanced Math for Engineers I
EE 3501 Advanced Math for Engineers II
CS 3515 Theory of Computation
CS 3550 Advanced Algorithms

(2) At least three courses from the following.
EE 3574 Advanced Digital System Design I
EE 3575 Advanced Digital System Design II
EE 3576 Computer Architecture I
EE 3577 Computer Architecture II
EE 3578 Advanced VLSI Design

(3) At least three courses from the following.
EE 3530 Data Communications
CS 3522 Database Theory
CS 3534 Parallel and Concurrent Computing
CS 3514 Artificial Intelligence I
EE 3570 Operating Systems or
CS 3540 Advanced Operating Systems

(4) At least three courses from an approved list of computer engineering/computer science courses.

An additional 24 credit hours of supporting work will be required of each student. These courses will be selected from advanced offerings in engineering, physical science and mathematics. The remaining 30 credit hours will be earned in dissertation and research as stated above.

Foreign Language Requirement—Under exceptional circumstances the candidate may be required to demonstrate reading proficiency in a foreign language, if the Doctoral Advisory Committee considers it necessary for his/her dissertation research.

Committees—For each degree candidate, a Doctoral Advisory Committee will be formed consisting of a dissertation advisor and at least three additional faculty with expertise in areas related to his/her program of study and research. At least one committee member must be from a department other than Computer Science or Electrical Engineering. The Doctoral Advisory Committee will be appointed in consultation with the candidate after completion of 9-12 hours of course work applicable to the doctoral degree. The appointment must be approved by the Graduate School and either the Graduate Advisor of the Department of Electrical and Computer Engineering or the Department of Computer Science. The Doctoral Advisory Committee will administer the candidate's Comprehensive Examination and, together with an additional faculty member from outside the College of Engineering, approved by and representing the Associate Vice President of Research and Graduate Studies, will conduct the Final Dissertation Examination.

Examinations—Upon entering the program, each student will be required to complete a Qualifying Examination. To pass this examination a student must demonstrate competency in the fundamentals of computer engineering. Upon completion of all course work, each student will take a Comprehensive Examination administered by his/her Doctoral Advisory Committee. Upon completion of the dissertation research, each student will be examined with regard to the outcome of the research project.

Dissertation—The dissertation must demonstrate both the ability to do independent research and competence in scholarly exposition. It should present original investigations at an advanced level of a significant problem in computer engineering and should provide the basis for a publishable contribution to the research literature in the field.

Dissertation topics will deal with the structure, function, and application of computer systems and/or digital information processing. Problems may emphasize digital architecture, hardware structures, functions, system design and analysis, or software.

Draft copies of the dissertation must be submitted to the Doctoral Committee at least six days before the defense and any suggested corrections must be made. Two copies of the final bound dissertation, and the unbound original, must be submitted to the Graduate School Office by the posted deadlines. Two bound copies must also be submitted to the Graduate Advisor.

Microfilming of the Dissertation—The doctoral candidate who has successfully completed all requirements for the degree is required to pay the cost of microfilm reproduction of the complete dissertation. The signed original copy (unbound) of the doctoral dissertation is sent from the Graduate School to University Microfilms, Ann Arbor, Michigan, for reproduction.

Along with the dissertation, the student must also submit to the Graduate School two copies of an abstract, not to exceed 350 words in length (double-spaced) which has been approved in final form by the supervising committee. This will be published in "Dissertation Abstracts International."

Publication by microfilm does not preclude subsequent publication of the dissertation, in whole or in part, as a monograph or in a journal. Copyright at the author's expense may be arranged, if desired, by completing a special form to be secured in the Graduate School Office. In order to protect patent or any other rights, the Graduate School may be requested to delay publication by microfilm for a period of one year. This request must be supported by a written recommendation of the supervising professor.

Time Limits and Catalog Changes—All requirements for the degree must be completed within one eight-year period preceding the awarding of the doctoral degree. Work more than eight years old is lost and can be reinstated only by special permission of the Graduate School upon recommendation of the Departmental Committee on Graduate Studies. Further, all requirements for the doctorate must be completed within five years after passing the Comprehensive Examination.

General and specific requirements for degrees in the Graduate School may be altered in successive catalogs. Provided the requisite course continues to be offered, the student is bound only by the course requirements of the catalog in force at the time of admission or readmission within an eight-year limit, unless, with the approval of the Associate Vice President for Research and Graduate Studies, the student elects to be bound by the course requirements of a subsequent catalog. This regulation applies to course requirements only.

DOCTOR OF PHILOSOPHY IN ENVIRONMENTAL SCIENCE AND ENGINEERING

The PhD in Environmental Science and Engineering is an interdisciplinary doctoral program, coordinated by the Center for Environmental Resource Management (CERM), to prepare scientists and engineers to address the environmental issues facing this region, the nation, and the world. The program emphasizes a cross-disciplinary perspective to the understanding, management, and remediation of human impacts on the environment, with a particular focus on problems of the Southwest Border region. For information regarding admission and degree requirements see the section for Interdisciplinary Studies after the College of Science section.

DOCTOR OF PHILOSOPHY IN MATERIALS SCIENCE AND ENGINEERING

The PhD in Materials Science and Engineering is an interdisciplinary doctoral program, coordinated by the Materials Research Institute (MRI), to prepare scientists and engineers to address the rapidly expanding opportunities and problems created by emerging materials-related industries. The program emphasizes a cross-disciplinary perspective of this vital field with a range of skills linking materials, structure, properties, synthesis and processing, and performance. For information regarding admission and degree requirements see the section for Interdisciplinary Studies after the College of Science section.

Civil Engineering

201B Engineering Science
(915) 747-5464

CHAIRPERSON: Miguel Picornell-Darder
GRADUATE FACULTY: Ashur, Ferregut, Nazarian, Oey, Osegueda, Picornell-Darder, Rozendal, Tarquin, Turner, Walton

The Civil Engineering Department offers the degrees of Master of Science in Civil Engineering (MS), Master of Science in Environmental Engineering (MSEnE), Master of Engineering in Environmental Engineering (MEEnE), and an undesignated Master of Science with a major in Engineering.

For the Master of Science in Civil Engineering, thesis and non-thesis programs are available. Students enrolled in the thesis program normally take a minimum of 24 hours of course work plus six hours of Civil Engineering 3598-99, Thesis. Non-thesis students follow a 33-hour program which includes credit for Civil Engineering 3596-97, Graduate Design Projects.

The Master of Science in Environmental Engineering requires 25 hours of course work, plus six hours of Civil Engineering 3598-99, Thesis. The Master of Engineering in Environmental Engineering requires 31 hours of course work, plus the completion of a professional report as part of six hours of Civil Engineering 3596-97, for a total of 37 credit hours.

Applicants wishing to pursue the Environmental program with a non Civil Engineering background are welcome to apply and should request specific detailed information regarding admission policy.

For Undergraduate and Graduate Students

3325 Environmental Engineering Fundamentals (3-0)
3435 Structural Design I (3-0)
3440 Transportation Engineering (3-0)
3441 Water Supply Engineering (3-0)
3442 Wastewater Engineering (3-0)
4448 Soil Mechanics (3-3)
3449 Foundation Engineering (3-0)
1453 Water and Waste Laboratory (0-3)
4456 Hydraulic Engineering (3-3)
4460 Structural Analysis II (3-3)
3461 Structural Design II (3-0)
4470 Mechanics of Materials II (3-3)
3471 Engineering Problems (3-0)
4390 Introduction to Air Pollution (3-3)

For Graduate Students Only

Civil Engineering (CE)

1591 Individual Studies (0-0-1)
Individual variable-credit research design or analysis on advanced phases of Civil Engineering problems conducted under the direct supervision of a faculty member. A maximum of six credit hours may be applied towards the MS degree. *Prerequisite*: Permission of Graduate Advisor.

1594 Graduate Research (0-0-1)
Individual variable-credit research of contemporary topics in civil engineering. Cannot be used to satisfy minimum degree requirements. Grade of pass or fail. *Prerequisite*: Permission of Graduate Advisor.

1595 Graduate Seminar (1-0)
Conferences and discussions of various topics in civil engineering by faculty, graduate students, and speakers from industry and other institutions. Attendance required of all full-time graduate students during each semester of enrollment.

2591 Individual Studies (0-0-2)
Individual variable-credit research design or analysis on advanced phases of Civil Engineering problems conducted under the direct supervision of a faculty member. A maximum of six credit hours may be applied towards the MS degree. *Prerequisite*: Permission of Graduate Advisor.

2594 Graduate Research (0-0-2)
Individual variable-credit research of contemporary topics in civil engineering. Cannot be used to satisfy minimum degree requirements. Grade pass or fail. *Prerequisite*: Permission of Graduate Advisor.

3502 Groundwater Hydrology (3-0)
A general course in groundwater hydrology, emphasizing fundamental principles and their applications to practical problems. Topics included are hydrologic cycles, geologic environments and controls, unsaturated and saturated zones, Darcy's law, continuity and energy principles, Navier-Stokes equations, flow equations, steady and unsteady hydraulics, aquifer tests, analytical and numerical models and computer codes. *Prerequisite*: Instructor's approval.

3503 Engineering Analysis (3-0)
Formulation and solution of initial and boundary value problems arising in structural mechanics. *Prerequisites*: MATH 3226 and instructor's approval.

3504 Advanced Reinforced Concrete (3-0)
Review of fundamental behavior of reinforced concrete structures. Design of reinforced concrete systems in accordance with ACI code. Topics includes two-way slabs, plates, shells, continuous beams, frames, prestressed concrete, and composite design. *Prerequisite*: CE 3435.

3505 Advanced Structural Analysis (3-0)
Theory of finite element approximation, numerical solutions of a variety of problems in structural mechanics including beam-columns, grid beams and plates on linear and nonlinear foundations, and matrix structural analysis. May be repeated for credit. *Prerequisite*: CE 3343 and instructor's approval.

3507 Theory of Finite Element Analysis (3-0)
Finite elements of structural mechanics problems, virtual work principle, plane trusses and frames, axial elements, beam bending, plane stress and plane strain, axi-symmetric stress analysis, three dimensional stress analysis, isoparametric finite elements, finite element computer project, and use of several finite element softwares to solve typical problems. *Prerequisites*: CE 3343 or equivalent, and CS 4120 FORTRAN or C programming, and instructor's approval.

***3508 Advanced Design of Steel Structures* (3-0)**
Design of structural steel systems using AISC LRFD code, welded and bolted connections of axial members, framed and seated shear connections, rigid and semi-rigid moment connections, base plate connections, beam and column splices, steel-concrete composite construction, and use of software to design typical systems. *Prerequisites*: CE 3461 and instructor's approval.

3510 Risk and Reliability Analyses of Engineering Systems (3-0)
Quantitative risk and reliability analyses in engineering. Reliability methods applicable to design, component reliability, system reliability, parallel systems, series system, extreme value theory, fault tree and decision analysis, approximate methods for risk and reliability, and selected applications to civil engineering. *Prerequisite*: Departmental approval.

3511 Structural Buckling and Stability (3-0)
Buckling of columns, frames, arches, rings, plates, and shells, lateral and torsional buckling of beams. Numerical methods of buckling analysis, and stability analysis of complex systems using specialized computer programs. *Prerequisites*: CE 3343 and instructor's approval.

3512 Environmental Processes (3-0)
Critical study of fundamental theories and modeling approaches for physical, chemical, and biological processes that affect the fate of chemicals in the environment. Mass flow and diffusion, kinetics and equilibrium, solubility and precipitation, volatilization, oxidation-reduction, types of sorption, complexation, radiodecay, and biotransformation. Applications focus on waste disposal, soil and groundwater reclamation, and advanced water and wastewater treatment operations. *Prerequisite*: Instructor's approval.

3517 Similitude and Statistical Methods (3-0)
Dimension and model theory and its use in analyzing physical experiments. Applications of probability and statistical analysis. *Prerequisite*: Instructor's approval.

3520 Advanced Soil Mechanics (3-0)
Shear strength, earth pressure calculation on retaining structures, soil bearing capacity theories, stress on shaft and tunnel linings, introduction to bearing capacity on permafrost, and slope stability. *Prerequisites*: CE 4448 and instructor's approval.

3521 Industrial Hygiene and Toxicology (3-0)
Techniques of industrial toxicology, mechanisms by which toxic gases, vapors, and dusts produce disease in experimental animals and in humans. *Prerequisite*: Instructor's approval.

3522 Hazardous and Special Wastes Management (3-0)
A study of waste management from cradle to grave: generation, storage, transportation, treatment, disposal, exchanges and minimization. The program emphasizes legislative and technical aspects with focus on treatment and disposal technologies. Analysis and design covers physical, chemical, thermal, or biological processes with general applications to the industrial and energy-producing sectors. Special wastes, such as high-technology, infectious and radioactive, are addressed as case studies. *Prerequisites*: A BS degree in engineering or chemistry, graduate standing in engineering or chemistry, or instructor's approval.

3525 Design of Structures for Dynamic Loads (3-0)
Behavior of structural members under dynamic loads. Vibration theory, particular reference to structures, design of structural systems for dynamic loads, wind loads, and earthquakes. *Prerequisite*: Instructor's approval.

3526 Air Pollution Control (3-0)
Effect of air pollution, classification of wastes, meteorological factors, sampling and analysis, abatement, and statistical analysis. *Prerequisite*: Instructor's approval.

3532 Modern Methods of Engineering Computations (3-0)
Methods of iterations, approximations, and numerical procedures used in solution of complex problems and optimizations such as occur in Engineering Design and Scientific Analysis. *Prerequisite*: Instructor's approval.

3533 Plates and Shells (3-0)
The theory and design of plates and shell structures by the membrane and bending stress theories. *Prerequisite*: Instructor's approval.

3535 Soil Dynamics (3-0)
Fundamentals of vibration, wave propagation in elastic homogeneous medium, shear modulus of soil, geophysical exploration, foundation vibration—half space theory, lumped parameter systems, dynamic lateral earth pressure, and soil liquefaction. *Prerequisites*: CE 4448 and instructor's approval.

3536 Rock Mechanics (3-0)
Classification and index properties, rock strength and failure criteria, initial stresses and their measurements, planes of weakness, deformability, underground openings, slope stability, and application to foundation engineering. *Prerequisites*: Graduate standing, CE 4448, and instructor's approval.

3538 Slope Stability (3-0)
Properties of soils relevant to slope stability. Site investigation, instrumentation and monitoring of slopes. Methods of stability analysis for embankments, dams, natural and manmade cut slopes, rockfalls, debris flow, mud slides, and submarine slopes. Stability of slopes under earthquake loading conditions. *Prerequisite*: Instructor's approval.

3540 Numerical Methods in Earth Sciences (2-3)
Formulation of finite difference, finite element, boundary element method, and mixed algorithms. Stability and convergence. Applications to problems related to seepage, diffusion, consolidation, subsidence, stability and deformation of soil masses. Use of computer codes in working actual engineering applications. *Prerequisite*: Instructor's approval.

3542 Groundwater Contamination and Reclamation (3-0)
Groundwater pollution sources and typical cases in hazardous and radioactive waste management. Fundamentals of flow and transport of chemicals in porous media. Modeling phase distribution of chemicals in subsurface environments. Use of state-of-the-art computer codes (mainframe- and micro-computers). Applications to either planning, case evaluation, remedial action or clean-up technologies. *Prerequisite*: Instructor's approval.

3543 Environmental Analysis Techniques (2-3)
The course covers advanced procedures for laboratory analysis of water and wastewater. Experiments using AA, GC, IC, TOC, and other instruments are conducted. Emphasis is placed on laboratory technique, data reporting and the student to be able to properly execute procedures specified in standard methods for accurate collection and reporting of research data. *Prerequisite*: CE 4509.

3544 Biological Unit Operations and Processes (3-0)
Design course for biological waste treatment systems. Both anaerobic and aerobic processes are covered and include attached and suspended growth processes such as activated sludge and its variants, bio-towers, RBC's, sequencing batch reactors, fluidized bed reactors and anaerobic digestion. The course will also address the biological removal and control of nitrogen and phosphorous for nutrient and ammonia toxicity control. *Prerequisite*: Instructor's approval.

3545 Advanced Water Treatment Processes (3-0)
Design course focusing on the development of treatment trains for the removal of contaminants from water. Advanced design process development for filtration, adsorption, disinfection, ion exchange, membrane processes and inorganic residuals disposal. Class includes relevant field trips to advanced treatment facilities and a process design project. *Prerequisite*: Instructor's approval.

3546 Industrial and Hazardous Waste Characterization and Treatment (3-0)
Design course focusing on the removal/degradation of contaminants from waste streams at industrial plants, municipal facilities, and hazardous waste sites. Waste minimization of industrial processes developed as an alternative to waste treatment. Advanced design process development including anaerobic and aerobic bio-reactors for hazardous contaminant degradation, vapor/liquid extraction, liquid/liquid extraction, super critical extraction, catalytic combustion, and solidification/stabilization. Design project on current topics. *Prerequisite*: CE 3543 or CE 3544.

3547 Vadose Zone Hydrology (3-0)
Study of the movement of water and contaminants in the unsaturated zone. Covers soil moisture potential, unsaturated constitutive relationships, static systems, steady flow, transient flow, transport of dissolved constituents, vapor phase contaminant transport, heat transfer, and mathematical modeling. *Prerequisite*: Instructor's approval.

3548 Design of Water and Wastewater Systems (3-0)
Design aspects of water and wastewater systems ranging from pipelines to treatment plants are covered. A detailed design of at least one unit will be completed as either an individual or class project. Cost estimating will be covered.

3549 Design of Filtration and Membrane Processes (3-0)
Fundamentals of particulate and ion removal/rejection are reviewed and then applied to engineered systems. The design of multi-media filtration systems, ultra and nano filtration processes, reverse osmosis (RO), and electrodialysis are covered in depth. Brine concentrate disposal methods such as deep well injection, irrigation, and enhanced evaporation are examined. Products such as membranes and brine concentration systems and availability from manufacturers are reviewed. Site visits to industrial application sites, an engineering design office, and an Original Equipment Manufacturer (OEM) may be included. *Prerequisite*: Instructor's approval.

3550 On-Site Wastewater Treatment (3-0)
On-site wastewater treatment considerations from wastewater generation rates through final disposal are discussed. Appropriate alternatives ranging from conventional to innovative systems are covered for single family residences, commercial, and institutional establishments. Alternative analyses include consideration of installation costs, operating cost, and technical performance. *Prerequisite*: Instructor's approval.

3551 Mechanistic Pavement Design and Analysis (3-0)
Stresses and deformations in flexible and rigid pavements. Traffic loading and volume. Material characterization. Drainage design. Definition of pavement performance. Application of reliability to pavement design. Flexible and rigid pavement design. Design of overlays. *Prerequisite*: Instructor's approval.

3552 Advanced Foundation Engineering (3-0)
Determination of lateral earth pressure. Design of mechanically stabilized retaining walls for excavation, and cofferdams. Design of foundations on difficult soils. Study of soil-structure interaction, mechanics of laterally-and axially-loaded piles. *Prerequisite*: Instructor's approval.

3553 Subsurface Site Investigation (2-3)
Subsurface data requirements. Conduct of investigations. Field mapping. Geological constraints. Engineering geophysics. Soil and rock sampling. Hydrogeology. Laboratory testing. Compilation and presentation of information. *Prerequisite*: CE 4448 or instructor's approval.

3590 Special Topics In Civil Engineering (3-0)
Advanced topics of contemporary interest in civil engineering. May be repeated for credit when topic varies. *Prerequisite*: Instructor's approval.

3591 Individual Studies (0-0-3)
Individual variable-credit research design or analysis on advanced phases of Civil Engineering problems conducted under the direct supervision of a faculty member. A maximum of 6 credit hours may be applied towards the MS degree. *Prerequisite*: Permission of Graduate Advisor.

3594 Graduate Research (0-0-3)
Individual variable-credit research of contemporary topics in civil engineering. Cannot be used to satisfy minimum degree requirements. Grade pass or fail. *Prerequisite*: Permission of Graduate Advisor.

3596 Graduate Design Projects (0-0-3)
Individual research, design, or analysis on advanced phases of civil engineering problems conducted under the direct supervision of a faculty member. The course, including a written report, is required of all students in the non-thesis option. *Prerequisite*: Instructor's approval.

3597 Graduate Design Projects (0-0-3)
Individual research, design, or analysis on advanced phases of civil engineering problems conducted under the direct supervision of a faculty member. The courses, including a written report, are required of all students in the non-thesis option. *Prerequisite*: CE 3596 and instructor's approval.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisite*: CE 3598.

4509 Environmental Engineering Chemistry (3-3)
Study and evaluation of the chemical characteristics of ground water, surface water, municipal waste waters, and industrial effluents. Acid base reactions, oxidation reduction reactions, gas solubility, adsorption, precipitation, and dissolution. Laboratory covers analysis of physical, chemical, and biological properties of water. Work with AA, GC, IC, TOC, and other instrumentation for water analysis. *Prerequisite*: Instructor's approval. Laboratory fee required.

4537 Properties of Unconsolidated Sediments (2-6)
Introduction to physico-chemical properties of soils; soil structure; soil classification; soil permeability; principle of effective stress, shear strength of soils; partially saturated soils; laboratory testing procedures. *Prerequisite*: Instructor's approval. Laboratory fee required.

4539 Foundations on Expansive Soils (3-3)
Fundamentals of the behavior of unsaturated soils. Volume change and strength properties. Environmental indicators that affect their behavior. Design of footings, slabs and beams on grade, and drilled piers. Soil improvement techniques and foundation rehabilitation methods. *Prerequisite*: Instructor's approval. Laboratory fee required.

4594 Graduate Research (0-0-4)
Individual variable-credit research of contemporary topics in civil engineering. Cannot be used to satisfy minimum degree requirements. Grade pass or fail. *Prerequisite*: Permission of Graduate Advisor.

5594 Graduate Research (0-0-5)
Individual variable-credit research of contemporary topics in civil engineering. Cannot be used to satisfy minimum degree requirements. Grade pass or fail. *Prerequisite*: Permission of Graduate Advisor.

6594 Graduate Research (0-0-6)
Individual variable-credit research of contemporary topics in civil engineering. Cannot be used to satisfy minimum degree requirements. Grade pass or fail. *Prerequisite*: Permission of Graduate Advisor.

Computer Science

234 Computer Science Building
(915) 747-5480

CHAIRPERSON: Daniel E. Cooke
GRADUATE FACULTY: Baral, Bernat, Cooke, Gates, Gelfond, Kreinovich, Longpre

The Computer Science Department offers a Master of Science with a major in Computer Science and participates (together with the Electrical and Computer Engineering Department) in the PhD program in Computer Engineering. Specific courses of study include database theory, artificial intelligence, software engineering, theory of computation, algorithms, computer systems and computing applications. All students are required to take at least four from the following five courses: CS 3522, CS 3514, CS 3515, CS 3540, and CS 3550. Thesis and non-thesis programs are available under this degree. Students enrolled in a thesis program normally take 27 hours of course work plus Computer Science 3598-99, Thesis. Non-thesis students normally follow a 30 hour program plus credit for Computer Science 3596-97, Graduate Projects.

Electrical Engineering and Computer Science graduate students may substitute EE 3596 and EE 3597 for CS 3596 and CS 3597 and vice versa with the permission of the graduate advisors from each Department.

Prerequisite for the degree is a baccalaureate degree in Computer Science, or at least 13 hours of undergraduate credit in Computer Science, consisting of CS 3202, CS 3350, CS 3330, EE 3269, and a first course in calculus (MATH 4111 or equivalent), or permission of the graduate advisor.

For Undergraduate and Graduate Students

Courses marked with an asterisk (*) may not be applied toward the Master of Science degree in Computer Science.

* 3330 Problem Oriented Programming Languages (3-0)
* 4332 Assembler Language Programming (3-0)
* 3333 Basic Concepts in Computer Science (3-0)
* 3335 Systems Programming (3-0)
* 3350 Automata, Computability and Formal Language (3-0)
* 3360 Design and Implementation of Programming Languages (3-0)
3370 Computer Graphics (3-0)
* 3410 Software Engineering I (3-0)
* 3411 Software Engineering II (3-0)
3420 Artificial Intelligence (3-0)
3442 Data Base Management (3-0)
3452 Translation of Programming Languages (3-0)
1471 Computer Science Problems (1-0)
3471 Computer Science Problems (3-0)
3475 Theory of Operating Systems (3-0)
3490 Special Topics in Computer Science (3-0)

For Graduate Students Only

Computer Science (CS)

1595 Graduate Seminar (1-0)
A survey of significant papers, dating back to Turing's "Computable Numbers," which have significantly influenced the nature of modern computer science. The assigned papers will be discussed in an informal seminar setting.

2594 Graduate Research (0-0-2)
Individual variable-credit research of contemporary topics in Computer Science. *Prerequisite*: Permission of Graduate Advisor.

3510 Computer Graphics (3-0)
Computer representation and display of graphical information including line, character, and curve generation, two and three dimensional graphical techniques, interactive methods, and advanced topics. *Prerequisite*: CS 3370.

3514 Artificial Intelligence I (3-0)
A study of First-Order Logic, including an introduction to Prolog. Knowledge representation including semantic networks and logical representations, query answering, and reasoning methods. *Prerequisite:* CS 3420 or equivalent.

3515 Theory of Computation (3-0)
A review of formal languages and Turing Machines with an in-depth study beginning with the Universal Turing Machine, followed by Undecidability, Computational Complexity Theory, and Intractable Problems. *Prerequisite:* CS 3350 or equivalent.

3516 Artificial Intelligence II (3-0)
A study of topics in mainstream AI, including natural language, learning, expert systems, and planning. *Prerequisite:* CS 3514 or equivalent.

3522 Database Theory (3-0)
A review of relational algebra followed by study of datalog and its extensions (negation as failure, aggregates), query optimization, dependencies, and object-oriented databases. *Prerequisite*: CS 3420.

3532 Compiler Construction (3-0)
A review of recursive-descent compilation and formal languages followed by an in-depth study of bottom-up parsing, code optimization, and compiler generators. *Prerequisite:* CS 3452 or equivalent.

3533 Logic Programming (3-0)
This course will include advanced logic programming techniques as well as an in-depth study of the semantics of Prolog, more advanced logic programming systems, and deductive databases. *Prerequisite:* CS 3514 or equivalent.

3534 Parallel and Concurrent Computing (3-0)
The study of multiple processes executing in parallel. Formal methods of concurrency. Multitasking. Hardware architectures for concurrency. Distributed computing. Examples from real-time systems, operating systems, fault-tolerant systems, and database systems.

3540 Advanced Operating Systems (3-0)
A review of process synchronization, deadlocks and memory allocation paradigm, followed by in depth coverage of distributed systems, computer security, and queuing theory. *Prerequisite*: CS 3475 or instructor's approval.

3550 Advanced Algorithms (3-0)
Review of asymptotic notation, followed by mathematical techniques for analysis of computer algorithms, and techniques for design of efficient algorithms (including sorting, searching, and graph algorithms). *Prerequisite*: CS 3202 or instructor's approval.

3590 Special Topics (3-0)
Advanced topics of contemporary interest in Computer Science. May be repeated for credit when topic varies. *Prerequisite*: Instructor's approval.

3591 Individual Studies (0-0-3)
Individual variable-credit research, design, or analysis on advanced phases of Computer Science problems conducted under the direct supervision of a faculty member. A maximum of three credit hours may be applied towards the MS degree. *Prerequisite*: Permission of Graduate Advisor.

3594 Graduate Research (0-0-3)
Individual variable-credit research of contemporary topics in Computer Science. *Prerequisite*: Permission of Graduate Advisor.

3596 Graduate Projects (0-0-3)
Individual research, design, or analysis on advanced phases of Computer Science conducted under the direct supervision of a faculty member. The courses, including a written report, are required of all students in the non-thesis option. *Prerequisite*: Instructor's approval.

3597 Graduate Projects (0-0-3)
Individual research, design, or analysis on advanced phases of Computer Science conducted under the direct supervision of a faculty member. The courses, including a written report, are required of all students in the non-thesis option. *Prerequisite*: CS 3596 and instructor's approval.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on thesis continues. *Prerequisite*: CS 3598.

5594 Graduate Research (0-0-5)
Individual variable-credit research of contemporary topics in Computer Science. *Prerequisite*: Permission of Graduate Advisor.

6594 Graduate Research (0-0-6)
Individual variable-credit research of contemporary topics in Computer Science. *Prerequisite*: Permission of Graduate Advisor.

Computer Engineering (COMP)

3698 Dissertation (0-0-3)
Dissertation course for doctoral students. Initial work on dissertation.

3699 Dissertation (0-0-3)
Dissertation course for doctoral students. Continuous enrollment required while work on dissertation continues. *Prerequisite*: COMP 3698.

Electrical and Computer Engin ering

301B Engineering Science Complex
(915) 747-5470

CHAIRPERSON: Michael Austin

GRADUATE FACULTY: Austin, Cabrera, Carrasco-Flores, Gibson, Liu, Lush, Manoli, Nemir, Pierluissi, Riter, Schroder, Shadaram, Singh, Smith, Starks, Usevitch, Williams

The Electrical and Computer Engineering Department offers a Master of Science Degree with a major in either Electrical Engineering, Computer Engineering, or Engineering, in conjunction with the Department of Computer Science, and a PhD degree in Computer Engineering.

MASTER OF SCIENCE DEGREES

Two options, thesis or non-thesis, are available for students. Master's students are normally admitted into the non-thesis option. A student may transfer (or may be required to transfer depending upon source of support) to the thesis option. Such transfer must be approved by the student's advisor, the graduate advisor, and the Department Chairperson.

Students enrolled in the thesis option are required to take at least 24 hours of course work plus thesis (EE 3598-99). Students in the non-thesis option are required to take 36 hours of course work and pass a comprehensive examination. At least 24 hours must be in graduate course work in Electrical Engineering including at least three sets of six hour sequences. (Current course sequences are available from the Department).

All students enrolled in the Electrical Engineering program are required to take EE 3500 and at least 12 hours of graduate course work in Electrical Engineering. No more than six semester hours of advanced undergraduate course work may be used to satisfy degree requirements.

All students enrolled in the program in Computer Engineering will be required to take at least 15 hours of graduate course work in areas with a strong emphasis in or applicability to Computer Engineering. These must include EE 3500 and either EE 3530, EE 3574, or EE 3576. No more than six semester hours of advanced undergraduate course work may be used to satisfy degree requirements. The thesis or project work should be in a computer related area.

For Undergraduates and Graduates

3384 Probabilistic Methods in Engineering and Science (3-0)
3441 Communication Systems (3-0)
3442 Digital Systems Design II (3-0)
1442 Laboratory for Electrical Engineering 3442 (0-3)
3447 Electromagnetic Energy Transmission and Radiation (3-0)
3450 Solid State Physical Electronics (3-0)
3461 Fiber Optic Communications (3-0)
3464 Systems and Controls (3-0)
3472 Microcontroller Applications (3-0)
3474 Operating System Design (3-0)
3475 VLSI Design I (3-0)
3478 Microprocessors Systems II (3-0)
1478 Laboratory for Electrical Engineering 3478 (0-3)
3479 Advanced Computer Architecture (3-0)
3480 Microwave Communications (3-0)
3481 Electro-Optical Engineering (3-0)
3482 Antenna Engineering (3-0)
3483 Digital Signal Processing (3-0)
3485 Biomedical Instrumentation (3-0)
3486 Computational Methods in Electrical Engineering (3-0)
3488 Digital Communications (3-0)
3489 High Resolution Radar (3-0)
3495 Special Topics in Electrical Engineering (3-0)

Normally, required undergraduate electrical engineering courses may not be applied toward the MS in electrical engineering or computer engineering.

For Graduate Students Only

Electrical and Computer Engineering (EE)

1591 Individual Studies (0-0-1)
Individual variable-credit research, design, or analysis on advanced phases of Electrical Engineering problems conducted under the direct supervision of a faculty member. A maximum of three credit hours may be applied toward the MS degree. *Prerequisite*: Permission of Graduate Advisor.

1594 Graduate Research (0-0-1)
Individual variable-credit research in electrical or computer engineering. Cannot be used to satisfy minimum degree requirements. Grade of S or U. *Prerequisite*: Graduate standing and instructor's approval.

1595 Graduate Seminar (1-0)
Conferences and discussions of various topics in electrical and computer engineering by faculty, graduate students, and speakers from industry and other institutions. Required of all graduate students during each semester of full-time enrollment.

2591 Individual Studies (0-0-2)
Individual variable-credit research, design, or analysis on advanced phases of Electrical Engineering problems conducted under the direct supervision of a faculty member. A maximum of three credit hours may be applied toward the MS degree. *Prerequisite*: Permission of Graduate Advisor.

2594 Graduate Research (0-0-2)
Individual variable-credit research in electrical or computer engineering. Cannot be used to satisfy minimum degree requirements. Grade of S or U. *Prerequisite*: Graduate standing and instructor's approval.

3500 Advanced Mathematics for Engineers I (3-0)
Probability, random variables, basic random processes, spectral analysis, and applications. *Prerequisite*: EE 3384 or STAT 3330 or equivalent.

3501 Advanced Mathematics for Engineers II (3-0)
A broad coverage of the field of numerical methods emphasizing computer techniques as they apply to Electrical Engineering. Topics generally include numerical integration and differentiation,

boundary-value and eigenvalue-value problems, finite-difference and finite-elements methods, and solutions to partial, parabolic, and hyperbolic differential equations. *Prerequisite*: MATH 3226.

3502 Linear Systems Analysis (3-0)
Analysis of generalized linear systems through a state space approach. Topics include linear algebra, continuous and discrete operational calculus, solution methods, controllability and observability, and an introduction to non-linear solutions and stability methods.

3506 Antenna Theory (3-0)
Fundamental theory of point sources; the antenna as an aperture; methods of analyzing and calculating characteristics of various types of antennas; self and mutual impedances of antennas; array of linear antennas; antenna measurement techniques. *Prerequisite*: EE 3321.

3507 Modern Control Theory (3-0)
State space techniques (continuous case); controllability and observability. Lyapunov's second method of steepest descent and other optimization techniques. *Prerequisite*: EE 3502 or EE 3464 or MECH 3411.

3510 Computer Graphics (3-0)
Advanced topics in two and three dimensional graphical techniques. Topics may vary, but course may not be repeated for credit.

3511 Semiconductor Devices (3-0)
Theory and application of advanced semiconductor devices including heterostructures, integrated circuits, semiconductor memories, charge transfer devices, thyristors, and microwave devices. *Prerequisite*: EE 3450 or equivalent.

3512 Advanced Optoelectronic Devices (3-0)
Theory and application of advanced photonic devices including injection lasers, photodiodes, infra-red detectors, solar cells, and electroluminescent displays. *Prerequisite*: EE 3511 or equivalent.

3514 Ultrafast Electron Devices for Super Computers (3-0)
Theory and applications of electron devices used in fast computers including high electron mobility transistors, optical logic gates, quantum well lasers, Josephson junction logic gates, and heterojunction bipolar transistors. *Prerequisite*: EE 3450 or equivalent.

3515 Advanced Electromagnetic Theory (3-0)
Theorems and concepts of uniqueness, equivalence, induction, reciprocity, and Green's functions. Application of plane, cylindrical, and spherical wave functions to resonators, waveguide, radiators, apertures, and scatterers. *Prerequisite*: EE 3321.

3516 Active Circuits Analysis (3-0)
Analysis of active networks; network sensitivity. Filter synthesis and design; immittance simulation. *Prerequisites*: EE 3340 and EE 3441.

3517 Linear Integrated Circuit Application (3-0)
Techniques of analysis and design of electronic circuits, using operational amplifiers, and linear integrated circuits such as multipliers, logarithmic amplifiers, and RC active filters. *Prerequisite*: EE 3340.

3519 RF Circuit Design (3-0)
Resonant circuits and impedance transformation. Small signal High-Frequency amplifiers. Sine Wave oscillators and phase lock loops. Mixers, AM, FM, and PM receivers and transmitters. Tuned power amplifiers. *Prerequisites*: EE 3340 and EE 3441.

3523 Communication Theory (3-0)
Transmission of information over noisy channels, coding for reliable transmission, error-detecting and error-correcting codes, modulation schemes. *Prerequisite*: EE 3500.

3524 Statistical Detection and Estimation Theory (3-0)
Application of statistical decision theory and estimation theory to problems of modern communication systems, radar and sonar systems, etc. Random signal representations, detection of signals with known and unknown parameters, estimation of signal parameters. *Prerequisite*: EE 3500.

3530 Data Communications (3-0)
Study of modern techniques for data transmission including modulation methods, coding theory, transmission techniques and switching theory.

3536 Fiber Optic Communication Systems (3-0)
Theory of light propagation in optical fibers, bandwidth and attenuation of fiber optic systems, principles of semiconductor lasers and photodiodes, noise in optical receivers, modulation techniques, and coherent optical communication systems.

3560 Computer Vision (3-0)
Fundamental concepts associated with the construction of meaningful descriptions of physical objects from images; including image segmentation, two-dimensional and three-dimensional representations, knowledge representation, matching, and inference. *Prerequisite*: Instructor's approval.

3570 Operating Systems (3-0)
Fundamental concepts as they apply to a variety of operating systems, including internal algorithms, such as CPU scheduling and memory management, sequential processes, and advanced current topics including protection systems and distributed processing. *Prerequisite*: CS 3475 or EE 3474.

3571 Digital Signal Processing (3-0)
Properties of discrete signals and systems. Reconstruction of continuous waveforms from discrete signals. FFT, DFT, and Z transforms. Digital filter design for noisy deterministic and stochastic signals. Advanced Topics. *Prerequisite*: EE 3483.

3572 Image Processing (3-0)
The study of enhancement and recognition of features in single and multichannel digital images. *Prerequisite*: EE 3571.

3574 Advanced Digital System Design I (3-0)
Modern logic design methodologies of large digital systems with standard SSI, MSI and LSI, including PLD's and microprocessors. Emphasis is placed on the use of multilevel digital simulation and hardware language description. *Prerequisite:* EE 3442 or equivalent.

3575 Advanced Digital System Design II (3-0)
Emphasis on the principles and techniques of testability design and testing of digital logic circuits, including test pattern generation and fault simulation. *Prerequisites*: EE 3574.

3576 Computer Architecture I (3-0)
Processing design, microprogramming, memory architecture, including memory hierarchy, cache and virtual memory, and pipelines. An introduction to multiprocessor configurations. *Prerequisites:* EE 3442 and EE 3376 or equivalent.

3577 Computer Architecture II (2-3)
Advanced topics in computer architecture, including parallel and distributed processing. *Prerequisite*: EE 3576.

3578 Advanced VLSI Design (3-0)
Important issues related to design of CAD tools for VLSI chip layout, testing, and simulation. Topics include area-time optimization, floor-plan and functional block placement, routing and functional testing for large systems. *Prerequisite:* EE 3475.

3589 Radar Signal Processing (3-0)
An in depth study of matched filter analysis and design, ambiguity function theory, wideband systems and signal processing, aperture synthesis, target imaging, and motion compensation. Includes a survey of modern spectral estimation techniques utilized to enhance the resolution of radar imagery. *Prerequisite*: EE 3489.

3590 Special Topics (3-0)
Advanced topics of contemporary interest in electrical or computer engineering. May be repeated for credit when topic varies. *Prerequisite*: Instructor's approval.

3591 Individual Studies (0-0-3)
Individual variable-credit research, design, or analysis on advanced phases of Electrical Engineering problems conducted under the direct supervision of a faculty member. A maximum of three credit hours may be applied toward the MS degree. *Prerequisite*: Permission of Graduate Advisor.

3594 Graduate Research (0-0-3)
Individual variable-credit research in electrical or computer engineering. Cannot be used to satisfy minimum degree requirements. Grade of S or U. *Prerequisite*: Graduate standing and instructor's approval.

3596 Graduate Projects (0-0-3)
Individual research, design, or analysis on advanced phases of electrical or computer engineering problems conducted under the direct supervision of a faculty member. The courses, including a written report, are required of all students in the non-thesis option. *Prerequisite*: Instructor's approval.

3597 Graduate Projects (0-0-3)
Individual research, design, or analysis on advanced phases of electrical or computer engineering problems conducted under the direct supervision of a faculty member. The courses, including a written report, are required of all students in the non-thesis option. *Prerequisite*: EE 3596 and instructor's approval.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on thesis continues. *Prerequisite*: EE 3598.

4594 Graduate Research (0-0-4)
Individual variable-credit research in electrical or computer engineering. Cannot be used to satisfy minimum degree requirements. Grade of S or U. *Prerequisite*: Graduate standing and instructor's approval.

5594 Graduate Research (0-0-5)
Individual variable-credit research in electrical or computer engineering. Cannot be used to satisfy minimum degree requirements. Grade of S or U. *Prerequisite*: Graduate standing and instructor's approval.

For Doctoral Students Only

1694 Graduate Research (0-0-1)
Individual variable credit research in computer systems engineering. Cannot be used to satisfy minimum degree requirements. Grade of pass or fail. *Prerequisite*: Doctoral standing and instructor's approval.

1695 Doctoral Seminar (1-0)
Conferences and discussions of various topics in electrical and computer engineering by faculty, graduate students, and speakers from industry and other institutions. Required of all doctoral students during each semester of full-time enrollment until preliminary exam is satisfactorily completed. *Prerequisite*: Doctoral standing.

2694 Graduate Research (0-0-2)
Individual variable credit research in computer systems engineering. Cannot be used to satisfy minimum degree requirements. Grade of pass or fail. *Prerequisite*: Doctoral standing and instructor's approval.

3690 Special Topics (3-0)
Advanced topics of contemporary interest in computer systems engineering. May be repeated twice for credit when topic varies. *Prerequisites*: Doctoral candidacy and departmental approval.

4694 Graduate Research (0-0-4)
Individual variable credit research in computer systems engineering. Cannot be used to satisfy minimum degree requirements. Grade of pass or fail. *Prerequisite*: Doctoral standing and instructor's approval.

5694 Graduate Research (0-0-5)
Individual variable credit research in computer systems engineering. Cannot be used to satisfy minimum degree requirements. Grade of pass or fail. *Prerequisite*: Doctoral standing and instructor's approval.

6694 Graduate Research (0-0-6)
Individual variable credit research in computer systems engineering. Cannot be used to satisfy minimum degree requirements. Grade of pass or fail. *Prerequisite*: Doctoral standing and instructor's approval.

Computer Engineering (COMP)

3698 Dissertation (0-0-3)
Dissertation course for doctoral students. Initial work on the dissertation.

3699 Dissertation (0-0-3)
Dissertation course for doctoral students. Continuous enrollment required while work on dissertation continues. *Prerequisite*: COMP 3698.

Mechanical and Industrial Engineering

101 Engineering Science Complex
(915) 747-5450

CHAIRPERSON: Thomas J. McLean

GRADUATE FACULTY: Bhaduri, Craver, Dowdy, Golding, Herrera, Hsu, Johnson, McLean, Quintana, Robbins, Roderick, Swift, Villalobos, Wu, Zadoks

The Mechanical and Industrial Engineering Department offers a Master of Science with majors in Mechanical Engineering, Industrial Engineering, and Manufacturing Engineering. Specific courses of study in the Mechanical Engineering major include fluid and thermal systems, and solid mechanics and machine design. Courses of study in the Industrial Engineering major include quality, computer simulation, ergonomics, production and inventory control, and operations research. Areas of concentration in the Manufacturing Engineering major include design of manufacturing processes, analysis of discrete productions systems, precision engineering, and automation.

Both thesis and non-thesis options are available under these three degree programs. Students enrolled in a thesis option follow a 30-hour program that is composed of 24 hours of course work plus six hours of thesis (MECH, IE, or MFG 3598 and 3599). Industrial and Manufacturing Engineering students desiring the thesis option must have approval from the corresponding program's Graduate Advisor. Non-thesis students follow a 36-hour program. For the Mechanical Engineering degree, the non-thesis option may include up to six credit hours for Graduate Projects (MECH 3596 and 3597). Mechanical Engineering students desiring the non-thesis option must have approval from the Mechanical Engineering Graduate Advisor. Students selecting the non-thesis option are required to take a comprehensive examination upon completion of their course work.

Any student holding a Bachelor of Science degree in any Engineering field is eligible to apply for admission into a program leading to the Master of Science with a major in Manufacturing Engineering.

All students enrolled in the Mechanical or Industrial Engineering program must take at least fifteen semester-hours of course work within their major if they are following the thesis option or eighteen if they are following the non-thesis option. Students enrolled in the Manufacturing Engineering program must take at least fifteen semester-hours of course work offered within the Department of Mechanical and Industrial Engineering if they are following the thesis option or eighteen for the non-thesis option. No more than six semester-hours of approved upper-level undergraduate course work may be used to satisfy the degree requirements in the Industrial and Manufacturing Engineering programs and nine hours in the Mechanical Engineering program. All course work must be approved by the student's academic advisor and by the Graduate School.

For Undergraduate and Graduate Students

Mechanical Engineering

Courses marked with an asterisk (*) may not be applied toward the Master of Science degree in Mechanical Engineering.

3411 Automatic Controls
3412 Fluid Power and Control Systems
3443 Robotics and Automated Manufacturing
3455 Gas Dynamics
3456 Applications of Solar Energy
* 3464 Mechanical Design
3487 Aerodynamics
3495 Special Topics in Mechanical Engineering
* 4451 Heat Transfer

Industrial Engineering

Courses marked with an asterisk may not be applied toward the Master of Science degree in Industrial Engineering.

3432 Safety Engineering
* 3484 Industrial Layout
* 3485 Statistical Quality Control and Reliability
* 3491 Production and Inventory Control
* 3492 Probabilistic Operations Research
3493 Engineers and Managing
3495 Special Topics in Industrial Engineering
* 4466 Senior Project

For Graduate Students Only

Mechanical Engineering (MECH)

1591 Individual Studies (0-0-1)
Individual variable-credit for non-thesis related research, design, or analysis on advanced phases of Mechanical Engineering problems conducted under the direct supervision of a faculty member. A maximum of 3 credit hours may be applied towards the MS degree. *Prerequisite*: Permission of Graduate Advisor.

1594 Graduate Research (0-0-1)
Individual variable-credit research of contemporary topics in mechanical engineering. *Prerequisite*: Permission of Graduate Advisor.

1595 Graduate Seminar (0-0-1)
Conferences and discussions of various topics in mechanical engineering by faculty, graduate students, and speakers from industry and other institutions. Required of all graduate students during each semester of full-time enrollment.

2594 Graduate Research (0-0-2)
Individual variable-credit research of contemporary topics in mechanical engineering. *Prerequisite*: Permission of Graduate Advisor.

3502 Advanced Mechanics of Materials I (3-0)
An introduction to the theory of elasticity and the principles of stress and strain. Solution of some elasticity problems such as bending and shear of beams, torsion of bars. Energy method and stability. *Prerequisite*: CE 3234.

3503 Advanced Heat Transfer I—Conduction (3-0)
Conduction in various coordinate systems; steady and transient-state cases with various boundary conditions; analytical, numerical, and graphical solutions. *Prerequisite*: MATH 3226 or instructor's approval.

3504 Advanced Heat Transfer II—Convection (3-0)
Thermal boundary-layer theory; forced convection in laminar and turbulent flows; free convection. *Prerequisite*: MECH 4354 or instructor's approval.

3506 Advanced Fluid Mechanics I (3-0)
Survey of the principal concepts of fluid mechanics, statics, continuity, momentum and energy relations for continuum fluids, kinematics of fluid motion, governing equations for motion of non-viscous fluid, vorticity and circulation, and Kelvin's theorem. Helmoholtz theorem, Crocco's theorem, steam function, potential flow, conformal transformation, theory or lift, and wave phenomena in fluids. *Prerequisite*: MECH 4354 or instructor's approval.

3507 Advanced Fluid Mechanics II (3-0)
Viscous and turbulent flows. Viscosity and dissipation phenomena. The Navier-Stokes and energy equations; creep flow at low Reynolds numbers, laminar boundary layers, laminar stability, transition and turbulence, turbulent boundary layers, jets, wakes, and separated flows. *Prerequisite*: MECH 4354 or instructor's approval.

3508 Advanced Mechanical Design (2-3)
Study of the method of optimum design for mechanical systems. Evolution of optimum design; approximation for explicit design; mathematical functions in design, evaluation of the effects of manufacturing errors on product performance, optimum choice for method of analysis, statistical consideration for factor of safety; adequate design, optimum design, design equations, normal redundant and incompatible specifications; loose limits and loose specifications; problems with more than one primary design equation.

3509 Structural Dynamics (3-0)
Continuation of MECH 4465 with emphasis on multiple degree-of-freedom systems and their response to disturbances. Normal mode theory, and matrix representation of problem; Laplace transform, electrical analogue and mobility techniques of solution. Vibration measurements and analysis.

3510 Advanced Thermodynamics (3-0)
Applications of general thermodynamic relations; study and applications of time-dependent energy relationships; analysis of power, refrigeration, cryogenic and direct energy conversion systems. *Prerequisite*: MECH 3376 or instructor's approval.

3512 Advanced Mechanics of Materials II (3-0)
Traditional approach to mechanics of materials with topics such as failure theories, fatigue, beams on an elastic foundation, stress concentrations, thick-walled and laminated cylinders, contact stresses, and inelastic behavior. *Prerequisite*: MECH 3502.

3518 Advanced Dynamics (3-0)
Velocity and acceleration analysis, motion of a point in space, rotating coordinate systems, balancing of masses; generalized coordinates, work and energy, and impulse and momentum. *Prerequisite*: MECH 3238 or equivalent.

3590 Special Topics (3-0)
Advanced topics of contemporary interest in mechanical engineering. May be repeated for credit when topic varies. *Prerequisite*: Instructor's approval.

3591 Individual Studies (0-0-3)
Individual variable-credit for non-thesis related research, design, or analysis on advanced phases of Mechanical Engineering problems conducted under the direct supervision of a faculty member. A maximum of three credit hours may be applied towards the MS degree. *Prerequisite*: Permission of Graduate Advisor.

3594 Graduate Research (0-0-3)
Individual variable-credit research of contemporary topics in mechanical engineering. *Prerequisite*: Permission of Graduate Advisor.

3596 Graduate Projects (0-0-3)
Individual research, design, or analysis on advanced phases of engineering problems conducted under the direct supervision of a faculty member. The courses, including a written report, are required of all students in the non-thesis option. *Prerequisite*: Instructor's approval.

3597 Graduate Projects (0-0-3)
Individual research, design, or analysis on advanced phases of engineering problems conducted under the direct supervision of a faculty member. The courses, including a written report, are required of all students in the non-thesis option. *Prerequisite*: MECH 3596 and instructor's approval.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisite*: MECH 3598.

4594 Graduate Research (0-0-4)
Individual variable-credit research of contemporary topics in mechanical engineering. *Prerequisite*: Permission of Graduate Advisor.

5594 Graduate Research (0-0-5)
Individual variable-credit research of contemporary topics in mechanical engineering. *Prerequisite*: Permission of Graduate Advisor.

6594 Graduate Research (0-0-6)
Individual variable-credit research of contemporary topics in mechanical engineering. *Prerequisite*: Permission of Graduate Advisor.

Industrial Engineering (IE)

1591 Individual Studies (0-0-1)
Individual variable-credit for non-thesis related research, design, or analysis on advanced phases of Industrial Engineering problems conducted under the direct supervision of a faculty member. A maximum of three credit hours may be applied towards the MS degree. *Prerequisite*: Permission of Graduate Advisor.

1594 Graduate Research (0-0-1)
Individual variable-credit research of contemporary topics in industrial engineering. *Prerequisite*: Permission of Graduate Advisor.

1595 Graduate Seminar (1-0)
Conference and discussions of various topics in industrial engineering by faculty, graduate students, and speakers from industry and other institutions. Required of all graduate students each semester of full-time enrollment.

2591 Individual Studies (0-0-2)
Individual variable-credit for non-thesis related research, design, or analysis on advanced phases of Industrial Engineering problems conducted under the direct supervision of a faculty member. A maximum of three credit hours may be applied towards the MS degree. *Prerequisite*: Permission of Graduate Advisor.

2594 Graduate Research (0-0-2)
Individual variable-credit research of contemporary topics in industrial engineering. *Prerequisite*: Permission of Graduate Advisor.

3513 Expert Systems for Industrial Applications (3-0)
Survey of applied areas of artificial intelligence including machine vision and robotics. Expert systems technology as it applies to industrial problems. Discussion of commercial expert systems. Construction of expert system using expert system building tools. *Prerequisite*: Instructor's approval.

3516 Advanced Work Design (3-0)
This course will focus on the theoretical and practical issues concerning the design of work. It will provide a thorough coverage of the principles of industrial safety, plant layout and design, and methods engineering from a productivity and quality man-machine system perspective. The course will consist of lectures, class discussions, and student projects.

3541 Advanced Production and Inventory Control (3-0)
This course emphasizes inventory control management for production planning and includes topics in inventory control, forecasting, lot sizing, dispatching, scheduling, releasing, kitting, MRP and just-in-time models. Strong emphasis on the solution and research of existing production and inventory control problems. *Prerequisite*: Instructor's approval.

3551 Linear and Combinatorial Optimization Methods (3-0)
Deterministic operations research techniques such as linear programming and its extensions, duality theory, sensitivity analysis, network related models, integer programming, and dynamic programming. Applications include production planning and project networks such as PERT/CPM. *Prerequisite*: IE 3389 or instructor's approval.

3552 Design and Analysis of Industrial Experiments (3-0)
Investigation of statistical sampling methods, hypothesis testing procedures, and design of experiments. Both parametric and non-parametric procedures are included. *Prerequisite*: IE 3485 or instructor's approval.

3554 Advanced Engineering Economy (3-0)
Capital budgeting, deterministic investment analysis, probabilistic engineering economy, manufacturing cost models, utility theory, and computer applications to engineering economy. *Prerequisite*: IE 3326 or instructor's approval.

3555 Management of Technology (3-0)
This course emphasizes the tools, techniques, concepts, and theories of managing an organization in a technological environment. Treated are the relevant issues concerning strategic planning, information management, reengineering of the corporation, and integrating of emerging technologies and concurrent engineering. *Prerequisite*: Instructor's approval.

3556 Probabilistic Optimization Methods (3-0)
Probabilistic operation research technique such as stochastic programming, Markov decision models, queuing theory, and system reliability theory. *Prerequisite*: IE 3492 or instructor's approval.

3557 Computer Simulation Applications (3-0)
An introduction to the concepts of simulation methodology as applied to the design and analysis of industrial systems. Specialized computer simulation language is applied to an industrial analysis or design term project. *Prerequisites*: Departmental approval.

3558 Nonlinear Optimization Methods (3-0)
General Optimization theory and numerical optimization methods for non-linear decision models. Coverage includes applications to automatic process control, engineering design optimization as well as available computer software. *Prerequisite*: IE 3389 or instructor's approval.

3559 Computer-Aided Manufacturing (3-0)
Modern concepts of using computers for manufacturing, including the theory of computer numerical control (CNC) and direct numerical control (DNC), CNC milling, CNC tuning and computer-aided process design. *Prerequisite*: Instructor's approval.

3562 Graphical Elements of Computer-Aided Design and Manufacturing (3-0)
Modern concepts of using computer graphics for engineering design and manufacturing, including computer graphics standards such as CORE graphics and GKS, graphic input/output devices, and software design and programming techniques for computer-aided design and manufacturing (CAD/CAM). *Prerequisite*: IE 3559.

3565 Survey of Operations Research (3-0)
An overview of advanced deterministic and probabilistic operations research techniques will be the main emphasis of this course. Topics to be covered include the formulation and solution of linear, dynamic, and integer programming as well as analysis of queuing systems. The course will consist of lectures and class discussions. *Prerequisites*: IE 3389 and IE 3492.

3577 Advanced Ergonomics and Process Design (3-0)
This course emphasizes the tools, techniques, concepts, and theories of ergonomics and human performance criteria for work in the manufacturing environment. Emphasis is on the design and evaluation of workstations, man-machine systems, and processes. *Prerequisite*: Instructor's approval.

3585 Advanced Quality Control (3-0)
This course covers current advances in quality control. The emphasis of the course is on continuous quality improvement. The course will concentrate on advanced quality control topics including, but not limited to, process, capability analysis, philosophies of quality management, advanced statistical process control, quality costs, and automated quality control. *Prerequisite*: Instructor's approval.

3590 Special Topics (3-0)
Advanced topics of contemporary interest in industrial engineering. May be repeated for credit when topic varies. *Prerequisite*: Instructor's approval.

3591 Individual Studies (0-0-3)
Individual variable-credit for non-thesis related research, design, or analysis on advanced phases of Industrial Engineering problems conducted under the direct supervision of a faculty member. A maximum of three credit hours may be applied towards the MS degree. *Prerequisite*: Permission of Graduate Advisor.

3594 Graduate Research (0-0-3)
Individual variable-credit research of contemporary topics in industrial engineering. *Prerequisite*: Permission of Graduate Advisor.

3596 Graduate Projects (0-0-3)
Individual research, design, or analysis on advanced phases of industrial engineering problems, conducted under the direct supervision of a faculty member. The courses, including a written report, are required of all students in the non-thesis option. *Prerequisite*: Instructor's approval.

3597 Graduate Projects (0-0-3)
Individual research, design, or analysis on advanced phases of industrial engineering problems, conducted under the direct supervision of a faculty member. The courses, including a written report, are required of all students in the non-thesis option. *Prerequisite*: IE 3596 and instructor's approval.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on thesis continues. *Prerequisite*: IE 3598.

4594 Graduate Research (0-0-4)
Individual variable-credit research of contemporary topics in industrial engineering. *Prerequisite*: Permission of Graduate Advisor.

5594 Graduate Research (0-0-5)
Individual variable-credit research of contemporary topics in industrial engineering. *Prerequisite*: Permission of Graduate Advisor.

6594 Graduate Research (0-0-6)
Individual variable-credit research of contemporary topics in industrial engineering. *Prerequisite*: Permission of Graduate Advisor.

Manufacturing Engineering (MFG)

1591 Individual Studies (0-0-1)
Individual variable-credit for non-thesis related research, design, or analysis on advanced phases of Mechanical Engineering problems conducted under the direct supervision of a faculty member. A maximum of three credit hours may be applied towards the MS degree. *Prerequisite*: Permission of Graduate Advisor.

1595 Graduate Seminar (1-0)
Conferences and discussions of various topics in mechanical engineering by faculty, graduate students, and speakers from industry and other institutions. Required of all graduate students during each semester of full-time enrollment.

2591 Individual Studies (0-0-2)
Individual variable-credit for non-thesis related research, design, or analysis on advanced phases of Mechanical Engineering problems conducted under the direct supervision of a faculty member. A maximum of three credit hours may be applied towards the MS degree. *Prerequisite*: Permission of Graduate Advisor.

3511 Design for Manufacturability (3-0)
Theoretical and practical aspects of the implications that the manufacturing process has on the design activities will be studied. Issues such as rapid prototyping, tolerancing, geometric modeling, capabilities of manufacturing processes, design for quality and maintainability and others will be covered. The course will consist of lectures, class discussions, and student projects.

3512 Strategic Design of Manufacturing Processes (3-0)
Strategic and tactical aspects of the design of manufacturing processes will be covered in this course. Techniques such as concurrent engineering, quality function deployment, group technology, process planning, and others will be covered. The course will consist of lectures, class discussions, and student projects.

3513 Integration of Manufacturing Systems (3-0)
This course will focus on the theoretical and practical issues of the integration of independent components of the manufacturing systems. Deterministics and stochastic modeling techniques will be used to analyze the interaction of the different components of a discrete manufacturing system. Special emphasis will be placed on the effects of automation on scheduling strategies and materials flow. The course will consist of lectures, class discussions, and student projects. *Prerequisites*: IE 3492 and IE 3491.

3514 Robotics and Flexible Automation (3-0)
Modern concepts of robotics and flexible automation including power and control mechanisms, flexible material handling systems, programmable controllers, interfacing and end-of-arm tooling. *Prerequisite*: Instructor's approval.

3515 Analysis of Material Handling Systems (3-0)
Study of the most recent developments in research and applications of material handling systems. Special emphasis will be placed on models and techniques that allow a good design of integrated material handling systems in a discrete production environment. The course will consist of lectures, class discussions, and student projects.

3520 Tooling Engineering (3-0)
Design of tooling for various manufacturing processes such as plastic injection, metal casting, stamping, forming, etc. Materials properties, tolerances, cost, and tool interchangeability are covered.

3521 Modeling and Analysis of Manufacturing Processes (3-0)
This project-oriented course is designed to be a capstone course for the graduate students of manufacturing engineering. The student will be expected to use the appropriate analytical tools to formulate, model, and solve real-life manufacturing problems. At the end of the course the student will give an open presentation of the results of the term project. *Prerequisites*: MFG 3512 and MFG 3513.

3522 Materials in Manufacturing Processes (3-0)
This course will focus on the selection of materials for manufacturing processes. In particular it will cover the properties of different materials as they apply to manufacturing such as: formability, machinability, hardening, weldability. It will also cover different types of materials such as: metal alloys, plastics, composites, ceramics, and adhesives. The course will consist of lectures, class discussions, and student projects. *Prerequisites*: CE 3234 and MME 3203.

3530 Concepts in Advanced Manufacturing (3-0)
Introduction to modern concepts in manufacturing systems with special emphasis on discrete production systems. Production control systems such as MRP, KANBAN, and Just-In- Time are covered. The advantages of group technology and FMS will be studied.

3550 Reliability and Maintainability (3-0)
This course deals with the application of reliability theory in engineering design. In particular, the course covers reliability functions and gives broad guidelines for designing reliability into a given situation and for determining the appropriate level of reliability. Accelerated testing, reliability management, the relationship between reliability and quality and maintainability and its management will also be covered.

3559 Computer-Aided Manufacturing (3-0)
Modern concepts of using computers for manufacturing, including the theory of computer numerical control (CNC) and direct numerical control (DNC), CNC milling, CNC tuning and computer-aided process design. *Prerequisite*: Instructor's approval.

3560 Computer Vision (3-0)
Fundamental concepts associated with the construction of meaningful descriptions of physical objects from images; including image segmentation, two-dimensional and three-dimensional representations, knowledge representations, and matching and inference.

3562 Graphical Elements of Computer-Aided Design and Manufacturing (3-0)
Modern concepts of using computer graphics for engineering design and manufacturing, including computer graphics standards such as CORE graphics and GKS, graphic input/output devices, and software design and programming techniques for computer-aided design and manufacturing (CAD/CAM). *Prerequisite*: IE 3559.

3590 Special Topics (3-0)
Advanced topics of contemporary interest in mechanical engineering. May be repeated for credit when topic varies. *Prerequisite*: Instructor's approval.

3591 Individual Studies (0-0-3)
Individual variable-credit for non-thesis related research, design, or analysis on advanced phases of Mechanical Engineering problems conducted under the direct supervision of a faculty member. A maximum of three credit hours may be applied towards the MS degree. *Prerequisite*: Permission of Graduate Advisor.

3594 Graduate Research (0-0-3)
Individual variable-credit research of contemporary topics in mechanical engineering. *Prerequisite*: Permission of Graduate Advisor.

3596 Graduate Projects (0-0-3)
Individual research, design, or analysis on advanced phases of engineering problems conducted under the direct supervision of a faculty member. The courses, including a written report, are required of all students in the non-thesis option. *Prerequisite*: Instructor's approval.

3597 Graduate Projects (0-0-3)
Individual research, design, or analysis on advanced phases of engineering problems conducted under the direct supervision of a faculty member. The courses, including a written report, are required of all students in the non-thesis option. *Prerequisite*: MFG 3596 and instructor's approval.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisite*: MFG 3598.

6594 Graduate Research (0-0-6)
Individual variable-credit research of contemporary topics in mechanical engineering. *Prerequisite*: Permission of Graduate Advisor.

Metallurgical and Materials Engineering

M201 Engineering Science Complex
(915) 747-5468

CHAIRPERSON: Lawrence E. Murr

GRADUATE FACULTY: Arrowood, Bronson, Fisher, McClure, Murr, Stafford, Varma

Graduate students in Metallurgical and Materials Engineering are involved with academic studies and research programs that focus on understanding the structure, properties, processing, and performance of materials, including the development of new or improved materials and advanced processing methods. These are the critical links between the design and the realization of new materials systems. Materials and materials limitations pervade all of the engineering and high technology fields that are an integral part of our society and its economic infrastructure. The challenges and opportunities for graduates in metallurgical and materials engineering are certainly exciting and exceptional.

The Metallurgical and Materials Engineering Department offers a Master of Science with a major in Metallurgical and Materials Engineering and an undesignated Master of Science with a major in Engineering. Students entering the program must demonstrate a background which includes MME 3306 (Rate Processes in Materials Systems), 3308 (Applied Chemical Thermodynamics), 3309 (Introduction to Electronic Materials Science), and 4306 (Physical Metallurgy), or their equivalent. Students holding a BS degree in Electrical or Mechanical Engineering or other related engineering fields or physics, chemistry, and related physical sciences can successfully complete the Master's program after taking certain undergraduate remedial courses which may be recommended by the Academic Advisory Committee. Up to nine semester hours of approved undergraduate courses may be applied toward the MS credit hour requirement. The Academic Advisory Committee will normally approve all academic program proposals and monitor academic progress of all graduate students until a thesis or research program advisor is chosen and a Research Advisory Committee developed. This can be done at any time after the student matriculates into the MS program. The Research Advisory Committee normally consists of the research advisor (who serves as its chairperson) and at least one additional member of the department faculty and one faculty member from another academic department. An additional member of the committee from another academic department is often desirable if a subspecialization is involved, bringing the committee size to four members. Students are required to meet with their Research Committee at least once per year, usually in the spring semester.

Thesis and non-thesis programs are available under the MS in Metallurgical and Materials Engineering degree. Students enrolled in a thesis program normally take a minimum of 24 hours of course work plus MME 3598-99 (Thesis). Non-thesis students follow a 36 hour program which includes credit for two Metallurgical and Materials Engineering Graduate Project courses, MME 3596 and 3597.

Thesis work should clearly demonstrate the ability to execute independent, innovative research. The research should be original and make a contribution to the state-of-the-art. The thesis work is the substance of the MS degree. It must be written (in whole or in part) as a technical paper and submitted for publication prior to the awarding of the degree. The student should be the senior (first) author.

All students are required to take MME 4501, 3502, 4503, and 3504 which are designed to apply the principles of thermodynamics, transport, reaction kinetics, crystal defects, and other materials fundamentals in contemporary materials engineering areas involving and reinforcing issues of structure, properties, processing, and performance. This course sequence is also designed to develop and apply experimental methods in metallurgical and materials engineering and materials science and engineering. A minimum grade point average of 3.0 is required.

Undesignated Degrees: A student holding a Bachelor of Science with a major in Metallurgical and Materials Engineering or a related materials area may work toward a 33 hour undesignated degree without a thesis, leading to a sub-specialization in an area outside of the major. The course work includes 18 hours in the major field and at least 12 hours in the particular area of sub-specialization. The work in the major field includes credit for MME 3596 (Graduate Project). Possible areas of sub-specialization are indicated below.

Non-thesis students are required to present a research report which must be approved by the Research Advisory Committee. There are no formal requirements for this report.

Sub-Specialization: Possible areas of sub-specialization for an undesignated degree or to complement a research area or to achieve a broader materials background may involve Business Management, Operations Research, Structural Mechanics, Electronic Device Design and Development, Experimental Design, Manufacturing Engineering emphasizing advanced manufacturing and Materials Processes, Waste Materials Management, and the like. Some examples of other engineering courses which might contribute to developing these areas include the following:

Mechanical/Industrial/Manufacturing Engineering

IE/MECH	3551	Linear & Combinatorial Optimization Methods
IE	3552	Design & Analysis of Industrial Experimentsl
IE	3559	Computer-Aided Manufacturing
IE	3562	Graphical Elements of Computer-Aided Design & Manufacturing
MECH/IE/MFG	3590	Special Topics in Mechanical, Industrial, and Manufacturing Engineering

Civil Engineering

CE	3505	Advanced Structural Analysis
CE	3512	Environmental Processes
CE	3517	Similitude & Statistical Methods

Electrical Engineering and Computer Science

CS	3510	Computer Graphics
EE	3511	Semiconductor Devices
EE	3512	Advanced Optoelectronic Devices

Students from other science or engineering disciplines may wish to develop a sub-specialization in Metallurgical and Materials Engineering or Materials Engineering. In general, a sub-specialization could be developed by considering the core program.

MME	4501	Microstructural and Microchemical Characterization of Materials
MME	3502	Materials Extraction, Synthesis & Processing
MME	4503	Advanced Concepts in Materials Science & Engineering
MME	3504	Phase Transformations & Microstructures

Other specialized areas could be developed by other groupings of courses or areas represented by course groupings. The first three core courses shown above from the MS program are also articulated with the PhD program core in materials science and engineering. Students completing the MS degree in metallurgical and materials engineering may waive MASE 4602, 4600, and 3502.

For Undergraduate and Graduate Students

3309	Introduction to Electronic Materials Science
3314	Composite Materials
3321	Engineering Alloys
3403	Metals Processing
4404	Materials Processing
4306	Physical Metallurgy
4307	Mechanical Behavior of Materials
3409	Corrosion
3416	Failure Analysis
4405	Materials Fabrication
4413	Structural Characterization
4419	Metallurgical and Materials Engineering Design

PhD in Materials Sciences and Engineering

The Department of Metallurgical and Materials Engineering is a participant in a multidisciplinary program leading to the PhD degree in Materials Sciences and Engineering. For information regarding admission and degree requirements see the section for Materials Sciences and Engineering listed under the Interdisciplinary Studies.

For Graduate Students Only

Metallurgical and Materials Engineering (MME)

1591 Individual Studies (0-0-1)
Individual variable-credit research, design, or analysis on advanced phases of metallurgical and materials engineering problems conducted under the direct supervision of a faculty member. A maximum of 3 credit hours may be applied towards the MS degree. *Prerequisite*: Permission of Graduate Advisor or Academic or Research Advisory Committee.

1594 Graduate Research (0-0-1)
Individual variable-credit research of contemporary topics in metallurgical and materials engineering. *Prerequisite*: Permission of Graduate Advisor.

1595 Graduate Seminar (1-0)
Conferences and discussions of various, contemporary topics in metallurgical and materials engineering by faculty, graduate students, and speakers from industry, government, or other academic institutions or departments. The program is organized to encourage the development of communications skills at a professional level for graduate students. Required of all graduate students during each semester of full-time enrollment. Up to 3 credits can be applied to the degree.

2594 Graduate Research (0-0-2)
Individual variable-credit research of contemporary topics in metallurgical and materials engineering. *Prerequisite*: Permission of Graduate Advisor.

3502 Materials Extraction, Synthesis, and Processing (3-0)
Thermodynamic, thermochemical, electrochemical, kinetic, and phase equilibrium fundamentals and fundamental structures and properties of materials applied to examples of ferrous and nonferrous extraction and processing. Examples include copper extraction, refinement, processing, alloying and performance; iron and steel making and iron alloy processing, metal and ceramic powder processing, and contemporary materials synthesis and processing. Offered in alternate years.

3504 Phase Transformations and Microstructures (3-0)
The theory of the nucleation and growth kinetics of solid materials, solid-solid transformations, and mechanisms. Rate processes, decomposition and ordering reactions, and microstructures. Diffusionless transformations, eutectoid and martensitic transformations are covered along with associated microstructural morphologies and property/performance control by microstructure control in materials. *Prerequisites*: MME 4306, MME 4307, and MME 4501, or equivalent, or instructor's approval.

3505 Thermodynamics of Materials (3-0)
The principles of chemical thermodynamics are applied to selected topics from all aspects of metallurgical processing. Subjects to be covered include solutions, phase equilibria, surface phenomena, free energy-composition diagrams, temperature-pressure diagrams, Eh-pH diagrams, and statistical estimation of thermodynamic functions. Offered in alternate years.

3507 Materials at High Temperatures (3-0)
Thermodynamic aspects of metal-oxygen reactions. Defects in inorganic (metal oxide) compounds and defect-dependent properties. Growth of oxide scales by lattice transport and development of stresses and strains. Oxidation in mixed reactants and hot corrosion and/or salt induced corrosion. Offered in alternate years. *Prerequisite*: MME 3505 or equivalent, or instructor's approval.

3508 Mechanical Behavior of Materials (3-0)
The underlying principles of elastic and plastic deformation of metals, ceramics, polymers, and composite materials will be developed. Topics include dislocation theory, slip, twinning, microstructures, and high and low temperature deformation behavior (tensile properties, creep, and fatigue) of crystalline and amorphous materials. Offered in alternate years. *Prerequisite*: MME 3203 or equivalent, or instructor's approval.

3510 Advanced Failure Analysis (3-0)
An advanced study of structural failure processes to include topics in fracture mechanics, fatigue, and environmental assisted cracking. Analysis of failures using metallographic, electron microscopy, and microanalytic techniques will be covered. Fracture of specific materials; steels, nonferrous alloys, composites, and nonmetallics will be included.

3513 Advanced Materials and Composites (3-0)
Properties and structures of composite materials and design of composite systems to yield desired combinations of properties. Metal, ceramic, and polymer composite systems as well as high-performance alloy systems or microcomposites. Applications of materials and composite fundamentals to manufacturing and processing. Offered in alternate years. *Prerequisites*: MME 4501, MME 4503 or equivalent, or instructor's approval.

3590 Special Topics (3-0)
Advanced topics of contemporary interest in metallurgical and materials engineering. May be repeated for credit when topic varies. *Prerequisite*: Instructor's approval.

3591 Individual Studies (0-0-3)
Individual variable-credit research, design, or analysis on advanced phases of metallurgical and materials engineering problems conducted under the direct supervision of a faculty member. A maximum of three credit hours may be applied towards the MS degree. *Prerequisite*: Permission of Graduate Advisor or Academic or Research Advisory Committee.

3594 Graduate Research (0-0-3)
Individual variable-credit research of contemporary topics in metallurgical and materials engineering. *Prerequisite*: Permission of Graduate Advisor.

3596 Graduate Projects (0-0-3)
Initial work on the project. Individual research, design, or analysis on advanced phases of engineering problems conducted under the direct supervision of a faculty member. The courses, including a written report, are required of all students in the non-thesis option. *Prerequisite*: Instructor's approval.

3597 Graduate Projects (0-0-3)
Continuous enrollment required while work on the project continues. Individual research, design, or analysis on advanced phases of engineering problems conducted under the direct supervision of a faculty member. The courses, including a written report, are required of all students in the non-thesis option. *Prerequisite*: MME 3596 and instructor's approval.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisite*: MME 3598.

4501 Microstructural and Microchemical Characterization of Materials (3-3)
An interdisciplinary approach to the theory and applications of techniques for characterizing chemical (microchemical) and microstructural features of solid materials. Techniques that will be stressed include X-ray diffraction, optical metallography, scanning and transmission electron microscopy (emphasizing analytical transmission electron microscopy), electron probe microanalysis, and surface and near surface microanalysis (Auger electron spectroscopy, ESCA, SIMS, etc.). Sample preparation techniques will be covered and students will be encouraged to examine materials which may have some application to their research problems. Offered in alternate years. *Prerequisite*: MME 4413 or equivalent introductory background in topic areas, or instructor's approval. Laboratory fee required.

4503 Advanced Concepts in Materials Science and Engineering (4-0)
A blend of contemporary solid state physics and chemistry emphasizing structure and properties and including processing (synthesis) and performance, illustrated by various classes of materials: Structural, electronic, magnetic, photonic, and superconducting. Fundamental issues and applications will include: crystal structure and crystal chemistry; disorder/order imperfections; phase equilibria, phase diagrams, phase transformation; reaction rates, kinetics, thermodynamics; microstructures in processing and performance; materials design/materials by design.

4594 Graduate Research (0-0-4)
Individual variable-credit research of contemporary topics in metallurgical and materials engineering. *Prerequisite*: Permission of Graduate Advisor.

5594 Graduate Research (0-0-5)
Individual variable-credit research of contemporary topics in metallurgical and materials engineering. *Prerequisite*: Permission of Graduate Advisor.

6594 Graduate Research (0-0-6)
Individual variable-credit research of contemporary topics in metallurgical and materials engineering. *Prerequisite*: Permission of Graduate Advisor.

College of Liberal Arts

Art
Communication
Criminal Justice
English
History
Languages and Linguistics
Interdisciplinary Studies
Music
Philosophy
Political Science
Psychology
Sociology and Anthropology
Theatre Arts

Position Vacant, Dean
Dr. William Sanders, Associate Dean
Dr. John Dick, Assistant Dean

Liberal Arts Bldg., Room 350
Phone: (915) 747-5666
Fax: (915) 747-5905

The College of Liberal Arts

In 1942 the History Department, a component of today's College of Liberal Arts, awarded UTEP's first master's degree. Since then, most of the departments in the College have developed graduate programs. MA programs are available in Art, Communication, English, History, Linguistics, Political Science, Psychology, Sociology, Spanish, and Theatre Arts. In addition to the MA, the Political Science Department offers the Master in Public Administration Degree and, in conjunction with the College of Business Administration, a joint MBA/MPA degree option. The Department of Music offers the Master of Music degree with options in Performance and in Music Education. The Master of Fine Arts (MFA) with a major in creative writing is an interdisciplinary program with options in English, Spanish, or bilingual. In September, 1993, the first students began course work in the PhD program in Applied Research Psychology – the first doctoral degree program in the College of Liberal Arts.

Students wishing to expand their knowledge in areas outside their previous training or present profession may pursue the Master of Arts in Interdisciplinary Studies. Students in this program take MAIS courses that emphasize cross-disciplinary approaches, with encouragement to pursue an individualized course of study designed to further their particular interdisciplinary interests.

UTEP and UT Austin offer a cooperative MSSW degree program designed to respond to community and regional needs in the area of social work practice and service. Graduates of the cooperative program are awarded a MSSW degree from UT Austin, but all classroom work is held on the UTEP campus. Courses are taught in the evenings and on weekends.

Also offered is a joint UTEP-UT Austin doctorate with a concentration in Border Studies. Students in this program can complete much of their course work in residence at UTEP with the doctoral degree awarded by UT Austin.

Art

350 Fox Fine Arts
(915) 747-5181

CHAIRPERSON: Albert Wong

GRADUATE FACULTY: Bauer, Jones, Koontz, Lopez, Parish, Perrigo, Quinnan, Segal, Thiewes, Wong

MA IN STUDIO ART AND ART EDUCATION

The Art Department offers two master's degree: The MA in Studio Art and the MA in Art Education. The MA in Studio Art offers majors and minors in Ceramics, Drawing, Graphic Design, Metals, Painting, Printmaking, and Sculpture. The MA in Art Education offers a major in Art Education with a minor in Studio Art with a final exhibition, and a minor in Education with a thesis or non-thesis option. The Studio Art minor degree is for students who wish to continue their professional development in art education and seek artistic growth. The thesis degree plan is for students who wish to pursue research in art education and may at a future date continue studies beyond the master's degree. The non-thesis degree plan is for students who wish to pursue research in art education for continued professional development purposes, but may not wish to continue studies beyond the master's degree in the future.

PROGRAM ADMISSION REQUIREMENTS

Studio Art

Requirements for Admission to Department: (1) a bachelor's degree; (2) 51 semester hours of Art, Art History, and Art Education. Applicants must apply both to the Graduate School and to the Art Department.

Application Procedures: Applicants must submit to the Art Departmental Advisor the following: (a) a completed Department of Art MA Application form; (b) a letter of application; (c) a portfolio of 10-15 slides of the applicant's recent art work, presented in a clear plastic slide sheet, with each slide labeled and identified on a separate slide list; (d) at least two satisfactory letters of recommendation; and (e) a written statement about the applicant's art.

Art Education

Requirements for Admission to the Department: To qualify for the Art Education program the applicant must have completed: (1) a bachelor's degree in Art, Art History, Art Education, or the equivalent; (2) a satisfactory score on the Graduate Record Examination (GRE) or TOEFL (for international students); (3) 51 semester hours in Studio Art, Art History, and Art Education.

Application Procedures: The applicant must submit to the Art Department advisor the following: (a) a completed Department of Art MA application form; (b) a letter of application stating how this degree program fits into the applicant's long-term goals; (c) an official transcript from the appropriate undergraduate college or university; (d) two letters of recommendation; (e) a portfolio of 10-15 slides of the applicant's most recent work, presented in a clear plastic slide sheet with each slide labeled and identified on a separate slide list (for minor in Studio Art only), and (f) a written philosophic and theoretical statement regarding the applicant's views of art and art education.

DEGREE PLANS

Studio Art

The Studio Art option requires 33 semester hours - 15 in a studio major, nine hours of a studio minor, three hours of Graduate Seminar, three hours in a related discipline or in Art History, and three hours of a Graduate Exhibition with exhibition report.

Art Education

Minor in Studio Art: The MA in Art Education with a minor in Studio Art degree plan requires 33 graduate level credit hours (with at least 27 semester hours at the 0500 level) which includes 12 hours in Art Education, 12 hours in studio to be determined by the student and the Graduate Committee chairman, three hours of Graduate Seminar, three hours in Art History, and three hours of Graduate Exhibition with exhibition report. All 0400 level work proposed for inclusion in this graduate degree must be elgible for graduate credit and recommended for approval by the graduate advisor of the department.

Minor in Education with Thesis: This degree plan requires 36 graduate level credit hours (with at least 27 semester hours at the 0500 level) which includes 12 hours of Art Education, three hours of Art History, three hours of Graduate Seminar, 12 hours of Education, and six hours of Thesis (with oral defense). A thesis, satisfactory to the Graduate Committee and the Graduate School, must be completed before the degree will be awarded. All 0400 level work proposed for inclusion in this graduate degree must be elgible for graduate credit and recommended for approval by the graduate advisor of the department.

Minor in Education with Non-Thesis: This degree plan requires 36 graduate level credit hours (with at least 27 semester hours at the 0500 level) which includes 18 hours of Art Education, three hours of Art History, three hours of Graduate Seminar, and 12 hours of Education. Graduate students enrolling in this degree option will be required to successfully complete both a written and oral comprehensive examination in Art Education and Education before the degree will be awarded. Candidates for this degree option will be required to write several scholarly papers, one of which must be presented to the Graduate Advisor for inclusion in the student's file. All 0400 level work proposed for inclusion in this graduate degree must be elgible for graduate credit and recommended for approval by the graduate advisor of the department.

APPLICATION DEADLINES

The deadline for application to the Art Department for either of the MA degree programs is April 15 for the following fall semester, and October 15 for the following spring semester.

Undergraduate Courses for Graduate Credit

ART THEORY

3427 Art and Cultural Pluralisms
3437 Applied Art Criticisms

ART HISTORY

3409 Research Problems in Art History
3419 Special Problems in Art History

CERAMICS

3404 Ceramics VI
3414 Ceramics VII
3424 Special Problems in Ceramics

DRAWING

3430 Special Problems in Life Drawing
3410 Advanced Drawing I
3420 Advanced Drawing II

METALS

3403 Metals VI
3413 Metals VII
3423 Special Problems in Metals

PAINTING

3401 Painting VI
3431 Painting VII
3441 Special Problems in Painting

PRINTMAKING

3405 Printmaking VI
3425 Printmaking VII
3435 Special Problems in Printmaking

SCULPTURE

3402 Sculpture VI
3432 Sculpture VII
3442 Special Problems in Sculpture

For Graduate Students Only

GENERAL COURSES (ART)

3593 Graduate Exhibition (0-0-3)
Organization and presentation of a one-person exhibition. This effort includes the planning, promotion, design, installation, and verbal defense of the exhibition to the selected graduate committee. *Prerequisite*: Departmental approval. Supplemental Tuition and Coaching fee required.

3595 Graduate Seminar (3-0)
Conference and discussions of various topics in Art by faculty, graduate students, and outside speakers. Required of all graduate Art majors. May be repeated one time.

ART EDUCATION (ARTE)

3501 Art Education Seminar (3-0)
Literature and current research in art education, with exchange of ideas and discussion of problems in the field.

3502 Graduate Problems in Art Education (0-0-3)
This course stresses individual direction and achievement in Art Education. May be repeated for credit.

3503 Art Curriculum Development (3-0)
Identification of principles, problems, and issues affecting visual arts curriculum in the schools. Examination of rationale and philosophies of various models of art education programs in the U.S.

3511 Teaching of Creative Art in the Elementary School (3-0)
This course is designed for the elementary classroom teacher. A series of projects, experiences, and discussions will assist the classroom teacher in making art a meaningful part of the curriculum. *Prerequisite*: Instructor's approval. Course fee required.

3521 Art Criticism in the Schools (3-0)
Examination of the history, philosophies, theories, and practices of visual arts criticism in American schools. Identification of problems and issues which center on the application of art criticism approaches affecting today's schools.

3522 Crafts Workshop (3-0)
Exploration of a variety of media in the crafts. Emphasis on media most adaptable to the public school art room. Problems and projects tailored to the students' needs. Course may be repeated when problem varies. Laboratory fee required.

3597 Directed Research in Art Education (0-0-3)
Independent research in art education with regular consultation between student and assigned professor. Course may be repeated when problem varies.

3598 Thesis (0-0-3)
Initial work on the thesis. Supplemental Tuition and Coaching fee required.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisite*: ARTE 3598. Supplemental Tuition and Coaching fee required.

ART HISTORY (ARTH)

3519 History of Modern Art (3-0)
This survey will cover painting, sculpture, and architecture from the mid-nineteenth century to World War II. Emphasis will be on an analysis of the work and its relationship to the cultural, philosophical, scientific, political, and economic factors. *Prerequisite*: Departmental approval. Course fee required.

3529 History of Contemporary Art (3-0)
This course will span the period from World War II to the present. The critical survey will concentrate on painting, sculpture, and architecture. Course fee required.

GRAPHIC DESIGN (ARTG)

3550 Directed Studio Problems (0-6)
Independent creative research with regular consultation between student and assigned faculty member. *Prerequisite*: Departmental approval. Fees required.

CERAMICS (CERM)

3550 Directed Studio Problems (0-6)
Independent creative research with regular consultation between student and assigned faculty member. Fees required.

DRAWING (DRAW)

3502 Graduate Problems in Drawing (0-6)
This course stresses individual direction and achievement in drawing. May be repeated for credit. Supplemental Tuition and Coaching fee required.

3550 Directed Studio Problems (0-6)
Independent creative research with regular consultation between student and assigned faculty member. Supplemental Tuition and Coaching fee required.

METALS (MTLS)

3550 Directed Studio Problems (0-6)
Independent creative research with regular consultation between student and assigned faculty member. Fees required.

PAINTING (PNTG)

3550 Directed Studio Problems (0-6)
Independent creative research with regular consultation between student and assigned faculty member. Fees required.

PRINTMAKING (PRNT)

3550 Directed Studio Problems (0-6)
Independent creative research with regular consultation between student and assigned faculty member. Fees required.

SCULPTURE (SCUL)

3502 Graduate Problems in Sculpture (0-6)
This course stresses individual direction and achievement in Sculpture. May be repeated for credit. Fees required.

3550 Directed Studio Problems (0-6)
Independent creative research with regular consultation between student and assigned faculty member. Fees required.

Communication

202A Cotton Memorial
(915) 747-5129

CHAIRPERSON:
GRADUATE FACULTY: Barrera, Byrd, Della-Piana, Ingle, Jones, Lawrence, Power, Riccillo, Trejo

The department offers a Master of Arts degree in Communication.

MA DEGREE PREREQUISITES: Twelve advanced hours (3300-3400) in Communication. Satisfactory score on Graduate Record Examination.

COMMUNICATION

MA DEGREE REQUIREMENTS: Majors in Communication must take a minimum of eighteen semester hours in Communication. For majors electing to do a thesis, six hours of credit (3598-99 Thesis) may be counted toward a required minimum of thirty hours of total course work, of which at least twenty-one hours must be in courses numbered 3500-3599. Majors electing a non-thesis option must take a minimum of thirty-six hours of total course work, of which at least twenty-seven must be in courses numbered 3500-3599.

Undergraduate courses for graduate credit. With the prior approval of the graduate advisor, students may take up to nine hours of upper level course work, six hours of which may be from the departmental offerings, to strengthen areas in which the student may be deficient and to enrich the graduate offering. The following undergraduate courses have been approved for graduate credit:

For Undergraduates and Graduate Students

COMM 3459 Seminar in Communication
COMM 3423 Case Studies in Public Relations
COMM 3455 Advanced Organizational Communication

For Graduate Students Only

Communication (COMM)

3532 Seminar in Contemporary Rhetoric (3-0)
Study of the contributions to understanding of persuasion and communication by modern humanistic theorists, such as Kenneth Burke, I. A. Richards, and Marshall McLuhan. Application of such theory to a variety of contemporary communication events. May be taken more than once with a change in area of emphasis.

3543 Seminar in Communication Theory (3-0)
Study of recent non-traditional contributions to theories of human communication. Investigates the application of models, the implications of recent developments in social psychology, and the results of experimental research. May be repeated for credit when content varies.

3550 Directed Study (3-0)
Investigation of a significant area in rhetoric, communication, public address, or media-based communication practices by individual students or small groups. May include individual research projects or field study. May be taken more than once with a change in area of emphasis.

3562 Organizational Communication (3-0)
Philosophy, methods, and designs for studying the communication systems and practices in a complex organization.

3598 Thesis (0-0-3)
Initial work on thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisite*: COMM 3598.

Criminal Justice

312 Jack Vowell Hall
(915) 747-7943

DIRECTOR: Roy Malpass
GRADUATE FACULTY: Daudistel, Graves, Hosch, Malpass, Rodriguez, Sanders, Smithey, Whitworth,

Students desiring graduate study in Criminal Justice may enroll for the Master in Public Administration (MPA) degree in the Department of Political Science. Graduate courses in Criminal Justice are available which will satisfy the twelve (12) hour elective requirement in the MPA degree.

3500 Seminar in Criminal Justice Administration (3-0)
Research, writing, and discussion.

3508 Seminar in Juvenile Justice (3-0)
Research, writing, and discussion.

3520 Seminar in Corrections (3-0)
Research, writing, and discussion.

3540 Seminar in Selected Topics (3-0)
Research, writing, and discussion.

Both basic and specific requirements for the MPA degree are found under "Political Science" in this catalog.

English

113 Hudspeth Hall
(915) 747-5731

CHAIRPERSON: Robert T. Bledsoe
GRADUATE FACULTY: Antone, Bledsoe, Boley, Clark, DeMarinis, Dick, Esch, Gladstein, Hernandez, Johnson, Jussawalla-Dasenbrock, Lawson, Mangelsdorf, Marchino, Melendez-Hayes, Meyers, Michaelsen, Mortimer, Polette, Posey, Potts, Saénz, Schmid, Smith, Stafford, Taylor, Ullman, West, Whitley

MA DEGREE IN ENGLISH

The English Department offers a Master of Arts in English degree with two options available: 1) the MA in English and American Literature, and 2) Professional Writing and Rhetoric, and the MFA in Creative Writing with a bilingual option.

ENGLISH AND AMERICAN LITERATURE

The primary objective of the Literature Option is to develop skill in reading and interpreting literature. The course work is designed to provide both a comprehensive knowledge of literature in its historical and intellectual contexts and the opportunity to explore competing theories of critical interpretation. The Literature Option offers the opportunity for students to prepare for teaching in secondary schools and at junior colleges. It also offers the opportunity for students to prepare for admission to PhD programs in British and American Literature.

Prerequisites: (1) a bachelor's degree; (2) for unconditional acceptance, a score of 500 on the GRE verbal scale and 500 on the GRE analytical scale; the score on the verbal scale will be given greater weight. Applicants with lower scores may be accepted conditionally if other prerequisites are met with distinction; (3) 18 hours of advanced level English courses; (4) writing sample (optional).

Requirements: (A) 30 semester hours of course work, English 3598-99, and an oral examination; or (B) 36 semester hours of course work, English 1597, and an oral examination.

1. **Core Curriculum** (27 hours): English 3500; four courses from English 3501-06; four courses in at least three different literary periods from English 3551-56 (English 3525 may be included as one of the four).
2. **Electives** (3-9 hours): any other graduate English courses except English 1530-3530; graduate courses in other departments as approved by the Director of Graduate Studies.
3. **Research Options** (1-6 hours): (a) Thesis (English 3598-99)—a substantial work of literary scholarship: the student submits a thesis proposal and the names of a thesis director, English Department reader, and outside reader to the Graduate Advisor for approval, and then follows the Graduate School guidelines for preparing and submitting a thesis; (b) Master's Paper (English 1597): the student submits to the Graduate Advisor a proposal for expansion and revision of a graduate research paper under the supervision of a director, English department reader, and an outside reader and then follows the Graduate School guidelines for preparing and submitting the paper.
4. **Oral Examination**: A defense of the thesis or Master's paper before the student's committee. In all cases a majority vote of the committee will determine acceptance or rejection.

CREATIVE WRITING

The Department of English and the Department of Languages and Linguistics offer a Master of Fine Arts degree in Creative Writing. A complete description of this program is listed under Liberal Arts Interdisciplinary Studies.

PROFESSIONAL WRITING AND RHETORIC

The Professional Writing and Rhetoric (PWR) Option stresses discourse theory, textual analysis, and practical writing. The core curriculum includes courses in rhetorical theory and application, discourse theory and analysis, linguistics, informative and persuasive writing, and literary discourse. There is, moreover, sufficient flexibility to allow students to fashion degree plans suitable to their individual interests. The PWR Option offers students the opportunity to prepare for careers as professional/technical writers and junior college or community college teachers, as well as for future academic study.

Prerequisites: (1) a bachelor's degree; (2) for unconditional acceptance, a score of 500 on the GRE verbal scale and 500 on the GRE analytical scale; the score on the verbal scale will be given greater weight. Applicants with lower scores may be accepted conditionally if other prerequisites are met with distinction; (3) nine hours of upper division course work in English, including Advanced Composition or the equivalent; (4) writing sample.

Requirements: 33 semester hours of course work, English 3597, and an oral examination.

1. **Core Curriculum:**

   Professional Writing and Rhetoric (24 hours)

   Research Methods: English 3500

   Rhetorical Theory and Application: English 3510; Communication 3532

   Linguistic Theory and Application: three hours from Linguistics 3509, 3519, 3541, 3570, or Psychology 3416

   Informative/Persuasive Discourse: six hours from English 3511, 3512, or 3515 (when topic is appropriate)

   Literary Discourse: at least three hours from English 3501-3506, 3550-3556, 3525; up to three hours from English 3520, 3566-3568.

2. **Electives** (9 hours): Electives may include any course listed above that is not being counted as part of the required hours; other approved electives include Linguistics 3520, 3573, 3578, Communication 3543, 3550, 3562, Psychology 3440, Political Science 3454, 3564, Sociology 3510, Management 3511, or graduate courses in other departments as approved by the Director of Graduate Studies.
3. **Practicum** (3 hours): English 3597—The Professional Writing and Rhetoric Option requires the completion of a supervised experience in addressing, responding to, and resolving a professional or academic communication problem through the preparation of an appropriate written document. The student submits a practicum proposal and the names of a practicum director, English Department reader, and an outside reader to the Graduate Advisor for approval, and then follows the Graduate School guidelines for preparing and submitting the practicum paper.
4. **Oral Examination:** A defense of the document prepared in English 3597 before the student's committee. In all cases a majority vote of the committee will determine acceptance or rejection.

INFORMATION FOR ALL OPTIONS

1. **Undergraduate Credit Hours:** Generally, undergraduate credit hours may not be used to satisfy graduate requirements. Exceptions must be approved by the Graduate Advisor in the English department and in no cases are to exceed six hours. With the prior approval of the Graduate Advisor, the following undergraduate course may be taken for graduate credit: ENGL 3490.
2. **Foreign Students:** Foreign students must supply a satisfactory grade in a special proficiency test in the English language before being allowed to register (write to Graduate Advisor, Department of English, for details).
3. **Graduate Advising:** All students upon entering the graduate program will outline a tentative degree plan with their Graduate Advisor. Students who have deficiencies in their undergraduate preparation are encouraged to supplement their graduate courses with undergraduate courses (no graduate credit).
4. **Programs of Study:** During the first semester of graduate study all students must submit to the Office of the Graduate Student Services a Preliminary Program of Study signed by their Graduate Advisor. The Preliminary Program of Study should show the courses required by the department which the student must complete prior to graduation. During the final semester of graduate study, each student must submit to the Graduate School a Final Program of Study signed by their Graduate Advisor. The Final Program of Study should show the courses taken and the courses required by the department which the student will complete during his or her last semester of graduate study. Programs which show an incomplete grade or a GPA below 3.0 cannot be approved.

For Graduate Students Only

English (ENGL)

1530 Topics in Composition (0-0-1)
Discussion, from a basis in discourse theory, of problems surfacing in the teaching of English composition and the application of strategies in the self-contained classroom and other instructional formats. Students may enroll for 1 to 3 hours; the course may be repeated; grading will be pass/fail. *Prerequisite*: ENGL 3510 and consent of the Director of Graduate Studies.

1597 Master of Arts Research Paper (ENGLISH AND AMERICAN LITERATURE OPTION) (0-0-1)
The student submits to the Director of Graduate Studies a proposal for expansion and revision of a graduate research paper under the supervision of a director, English Department reader, and an outside reader, and then follows the Graduate School guidelines for preparing and submitting the paper.

2530 Topics in Composition (0-0-2)
Discussion, from a basis in discourse theory, of problems surfacing in the teaching of English composition and the application of strategies in the self-contained classroom and other instructional formats. Students may enroll for 1 to 3 hours; the course may be repeated; grading will be pass/fail. *Prerequisite*: ENGL 3510 and consent of the Director of Graduate Studies.

3500 Introduction to Graduate Studies in English (3-0)
Introduces students to the range of scholarly endeavors in English studies, to the standards, methods, and tools of research in the field, and to theoretical assumptions implicit in the various analytical and critical approaches to texts. Course work will include a substantial research project carried out under close faculty supervision.

3501 British Literature to 1485 (3-0)
Survey of Old English and Middle English literature ranging from Beowulf to the Arthurian romances and covering such writers as Chaucer, the Gawain poet, and Malory.

3502 British Literature 1485-1660 (3-0)
Survey of representative writers, literary trends, and the social and intellectual background from the early Renaissance to the Restoration. Such writers as More, Wyatt, Sidney, Spenser, Shakespeare, Donne, Herbert, Milton, and Marvell, and such issues as Humanism, Petrarchanism, Neoplatonism, and Metaphysical poetics may be discussed. Emphasis will vary with the instructor.

3503 British Literature 1660-1832 (3-0)
Survey of literature from the Restoration through the Romantic period. Such writers as Dryden, Swift, Pope, Richardson, Fielding, Johnson, Wordsworth, Coleridge, Keats, and Byron, and such subjects as Restoration Theatre, Neoclassicism, the novel, Gothicism, and the Romantic aesthetic may be covered. Emphasis will vary with the instructor.

3504 British Literature 1832-Present (3-0)
Survey of representative writers and literary trends from the Victorian period to the present. Such writers as Tennyson, Browning, Dickens, Bronte, Eliot, Wilde, Shaw, Joyce, Woolf, Yeats, Lawrence, Lessing, and Fowles, and such issues as social reform, religious turmoil, industrialism, Darwinism, Marxism, and existentialism may be discussed. Emphasis will vary with the instructor.

3505 American Literature to 1860 (3-0)
Survey of representative writers, literary trends, and the social and intellectual background from the colonial period to 1860. Such writers as Bradford, Franklin, Jefferson, Bryant, Irving, Cooper, Poe, Hawthorne, Whitman, Emerson, Thoreau, and Melville, and such issues as Puritanism, national self-realization, and Transcendentalism may be discussed. Emphasis will vary with the instructor.

3506 American Literature since 1860 (3-0)
Survey of representative writers and literary trends from the Civil War to the present. Such writers as Twain, James, Crane, Dickinson, Cather, Frost, Cummings, Pound, Fitzgerald, Hemingway, Steinbeck, Faulkner, Porter, Ellison, and Plath, and such subjects as Realism, Naturalism, Marxism, Freudianism, sexism, racism, Modernism, the World Wars, and regional writing may be discussed. Emphasis will vary with the instructor.

3510 The Field of Discourse: Theory and Analysis (3-0)
Exploration of the common and distinguishing characteristics of expressive, informative, persuasive, and literary discourse through the study of discourse theory and close analysis of texts.

3511 Practical Rhetoric: Persuasion and Argument (3-0)
A writing course stressing the application of classical and contemporary rhetorical theory to a variety of practical writing tasks involving argument and persuasion.

3512 Technical Writing Proseminar (3-0)
A writing course focusing upon rhetorical techniques for technical writing, graphics, and editing.

3515 Professional Writing Seminar (3-0)
Intensive study and practice in a range of professional writing fields, such as organizational and managerial communication, report writing, writing for publication, biography, and translation. May be repeated once when topic varies.

3520 Literary Criticism: Theory and Practice (3-0)
A survey of the basic critical texts and arguments about literature in the Western tradition. Students will examine and practice the translation of these arguments into practical readings and valuation of selected literary texts. Course work includes at least one substantial research project carried out under close faculty supervision.

3525 Genre: Theory and Practice (3-0)
Studies in the theory of genre with focus on one genre, such as the novel, the lyric, comedy, or the epic. Course may be repeated when the topic varies.

3530 Topics in Composition (3-0)
Discussion, from a basis in discourse theory, of problems surfacing in the teaching of English composition and the application of strategies in the self-contained classroom and other instructional formats. Students may enroll for 1 to 3 hours; the course may be repeated; grading will be pass/fail. *Prerequisite*: ENGL 3510 and consent of the Director of Graduate Studies.

3545 English Teaching Methods (3-0)
An advanced course in English teaching methods, stressing theory and its classroom applications, and focusing alternately on such topics as teaching literature, composition, grammar, creative writing, or appropriate combinations of these. May be repeated when topic varies.

3550 Seminar: Special Topics (3-0)
Studies in comparative literature, current literary thought or techniques, or a focus on a prescribed area such as a subgenre or literary group.

3551 Seminar: Studies in British Literature to 1485 (3-0)
Detailed study of one or more major authors, schools, literary trends, or genres from the Anglo-Saxon period to the Renaissance.

3552 Seminar: Studies in British Literature 1485-1660 (3-0)
Detailed study of one or more major authors, schools, literary trends, or genres from the early Renaissance to the Restoration.

3553 Seminar: Studies in British Literature 1660-1832 (3-0)
Detailed study of one or more major authors, schools, literary trends, or genres from the Restoration through the Romantics.

3554 Seminar: Studies in British Literature 1832-Present (3-0)
Detailed study of one or more major authors, schools, literary trends, or genres from the Victorian period to the present.

3555 Seminar: Studies in American Literature to 1860 (3-0)
Detailed study of one or more major authors, schools, literary trends, or genres from the Colonial period to the Civil War.

3556 Seminar: Studies in American Literature Since 1860 (3-0)
Detailed study of one or more major authors, schools, literary trends, or genres from the Civil War to the present.

3564 Forms and Techniques of Fiction (3-0)
A course in directed reading and writing that leads the student to an understanding of the creative process through analysis and imitation of important contemporary works of fiction. May be repeated once. *Prerequisite*: Departmental approval.

3565 Forms and Techniques of Poetry (3-0)
A course in directed reading and writing that leads the student to an understanding of the creative process through analysis and imitation of important contemporary works of poetry. May be repeated once. *Prerequisite*: Departmental approval.

3566 Advanced Fiction Writing (3-0)
Intensive study and practice in the various forms and approaches of fiction writing, including workshop discussion of individual student manuscripts. May be repeated once. *Prerequisite*: Departmental approval.

3567 Advanced Poetry Writing (3-0)
Intensive study and practice in the various forms and approaches within the writing of poetry, including workshop discussion of individual student poems. May be repeated once. *Prerequisite*: Departmental approval.

3568 Creative Writing Seminar (3-0)
A variable topics course that provides intensive practice and study in one of the genres of imaginative writing, such as novel writing, screenwriting, non-fiction freelancing, or biography/autobiography. May be repeated when topic varies. *Prerequisite*: Departmental approval.

3570 Tutorial in Fiction (3-0)
Advanced workshop course in which the student is guided towards the production of works of fiction of professional quality. May be repeated once. *Prerequisite*: Departmental approval.

3571 Tutorial in Poetry (3-0)
Advanced workshop course in which the student is guided towards the production of works of poetry of professional quality. May be repeated once. *Prerequisite*: Departmental approval.

3597 Writing Practicum (0-0-3)
The student submits a practicum proposal and the names of a practicum director, English Department reader, and an outside reader to the Director of Graduate Studies, and then follows the Graduate School guidelines for preparing and submitting the practicum paper. Required of Professional Writing and Rhetoric majors.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisite*: ENGL 3598.

History

334 Liberal Arts
(915) 747-5508

CHAIRPERSON: Kenton Clymer

PROFESSOR EMERITI: Kenneth K. Bailey, Wayne E. Fuller, Kenneth B. Shover, W. H. Timmons

GRADUATE FACULTY: Ambler, Chavez, Clymer, Hackett, Jackson, Kawashima, C.E. Martin, C.H. Martin, McGee Deutsch, Perez, Righter, Schalk, Smith, Topp, Weber

MA DEGREE OPTIONS: Students working toward the Master of Arts degree in history may choose either the standard option or a specialized option in the history of the United States-Mexico Border. Both options provide degree plans with or without a thesis.

DEGREE REQUIREMENTS

Standard Degree Plans (I & II)

Prerequisite: Admission to the Graduate Program in History.

Plan I requires the completion of 30 hours, including an acceptable thesis. A Plan I student must complete nine hours of graduate seminars in history, nine hours of graduate studies courses in history, and History 3598-3599.

The remaining six hours may be selected in any combination, from among graduate studies courses, graduate seminars, and upper division undergraduate courses available for graduate credit.

Plan II requires the completion of 36 hours, including the submission of two acceptable seminar papers in lieu of a thesis. A Plan II student must complete 12 hours of graduate studies courses in history, six hours of graduate seminars in history, and, in the final semester of work, History 3593.

The remaining 15 hours may be selected from among graduate studies courses, graduate seminars, and upper division undergraduate courses available for graduate credit. In keeping with graduate school regulations, no more than nine hours of undergraduate courses may be counted for graduate credit and only six of these hours may be taken in history; three additional hours may be included in a Minor field, if a Minor field is selected and approved.

Plan II students must submit the two seminar papers to the departmental committee which conducts the final examination for the MA degree, as prescribed by the Graduate School. The two seminar papers must be written under the direction of different professors.

As a part of the total 36 hours, a student may choose a Minor in a related field, provided the department's graduate advisor approves. The Minor requires six hours, of which at least three must be at the 3500 level.

Minor in Public History

Whether choosing Option I or II, a student may take a Minor in Public History. For the minor, a student must successfully complete History 3502, Introduction to Public History, and History 3590, Internship in Public History (History 3590 may be replaced with History 3570, Seminar in U.S. History: Public History). In addition, the student must complete nine hours of Department of History offerings or selected courses outside the department. These courses must be approved by the Department of History Graduate Advisor.

The Minor in Public History will be awarded only in conjunction with the completion of the MA in History degree.

Border History Degree Plans (III & IV)

Prerequisite: Admission to the Graduate Program in History and the completion of the fourth semester of Spanish language instruction with a grade of "B" or better, or successful completion of a department-approved Spanish language competency examination.

Plan III requires the completion of 30 hours, including an acceptable thesis. Specific requirements are as follows:

Seminars: Nine hours required, including the core course in border history and two other courses directly related to the U.S.-Mexico borderlands. Course substitution is permitted with the approval of the Border Studies Graduate Committee.

Studies Courses: Nine hours required. Of the nine hours, six must be related to the U.S.-Mexico Border and must be approved by the Border Studies Graduate Committee.

Other Courses: Six hours required from among History 3309, 3312, 3316, 3317, 3322, 3328, 3342, 3343, and 3390 (when topic is related to the U.S.-Mexico Border). With the approval of the Border Studies Graduate Committee, a student may substitute a graduate course, or a student may select a Minor field in a related discipline. A Minor field requires six hours, of which at least three hours must be at the graduate (3500) level.

Thesis: History 3598-3599.

Plan IV requires the completion of 36 hours; in lieu of a thesis, two revised seminar papers must be submitted to the committee conducting the final examination. The two seminar papers must be written under the direction of different professors. Specific requirements are as follows:

Seminars: Six hours required of courses related to the U.S.-Mexico border. Course substitution is permitted with the approval of the Border Studies Graduate Committee.

Studies Courses: Twelve hours required, of which at least nine must be related to the U.S.-Mexico Border and must be approved by the Border Studies Graduate Committee.

Undergraduate Courses Taken for Graduate Credit: Six hours from among the following—History 3309, 3312, 3316, 3317, 3322, 3328, 3342, and 3390 (when topic is related to the U.S.-Mexico Border). With the approval of the Border Studies Graduate Committee, a student may submit graduate level courses.

Other Courses: Nine hours from among any graduate courses in the department of history, or three graduate hours in the department of history and six hours in a Minor field in a related discipline. Minor fields must be approved by the Border Studies Graduate Committee. A Minor field requires six hours, of which at least three hours must be at the graduate (3500) level.

Independent Research: History 3593, to be taken in the final semester of work.

For Undergraduate and Graduate Students

The following undergraduate courses have been approved for graduate credit. Students taking these courses for graduate credit will be required to do additional work.

3301 Colonial America to 1763 (3-0)
3302 The American Revolution and the New Nation, 1763-1815 (3-0)
3304 The Age of Jackson, Clay, and Webster, 1815-1860 (3-0)
3305 The Civil War and Reconstruction Era, 1860-1877 (3-0)
3306 From Plutocracy to Progressivism, 1877-1917 (3-0)
3307 The Interwar Years, 1918-1941 (3-0)
3308 United States since 1941 (3-0)
3309 Mexican-American History (3-0)
3310 American Legal History (3-0)
3311 History of American Foreign Relations to 1914 (3-0)
3312 History of American Foreign Relations since 1914 (3-0)
3313 American Military History (3-0)
3316 Southwest Frontier (3-0)
3317 History of Texas since 1821 (3-0)
3318 American Environmental History (3-0)
3321 19th Century American West (3-0)
3322 20th Century American West (3-0)
3323 American Indian History (3-0)
3324 The United States in Vietnam and Southeast Asia (3-0)
3328 History of Hispanic Peoples in the United States (3-0)
3330 East Asia (3-0)
3331 History of Religion in the East (3-0)
3332 Russia (3-0)
3333 The Soviet Union (3-0)
3336 Pre-Modern Africa (3-0)
3337 Modern Africa (3-0)
3339 Pyramids and Prophets: Ancient Egypt, Mesopotamia and Palestine (3-0)
3340 The Middle East and Islam (3-0)
3342 The Spanish Borderlands (3-0)
3343 The U.S.-Mexican Border (3-0)
3346 Central America and the Caribbean (3-0)
3347 South America since 1810 (3-0)
3349 History of Mexico to 1900 (3-0)
3350 The Mexican Revolution (3-0)
3354 England to 1547 (3-0)
3355 England since 1547 (3-0)
3359 History of Religion in the West (3-0)
3360 Ancient Greece (3-0)
3361 The Roman World (3-0)
3362 The Medieval World (3-0)
3364 The Age of Renaissance (3-0)
3365 The Age of the Reformation (3-0)
3367 The French Revolution and Napoleonic Eras (3-0)
3369 Twentieth Century Europe, 1900 to the Present (3-0)
3374 Modern Germany since 1866 (3-0)
3381 The History of Spain and Portugal (3-0)
3390 History, Special Topics (3-0)
3391 History of Women (3-0)

For Graduate Students Only

History (HIST)

STUDIES COURSES

Graduate Studies courses are designed to provide a flexible approach to the study of history in various general areas. The specific topic studied will vary from semester to semester; each semester a brief description will be found in the published schedule of classes. Generally, studies courses involve reading, discussion, and writing, but depending on the nature of the topic, lectures or other approaches may be employed.

3502 Introduction to Public History (3-0)
Emphasizes history careers apart from traditional teaching jobs. Fields such as archive and museum management, historic preservation, cultural resource management, and policy planning will be explored.

3505 Studies in United States History (3-0)
Focuses in depth on a theme, movement, or period of significance in United States history. Past topics have included the family in colonial America, quantification in history, American slavery, the West in fact and fiction, U.S. foreign policy in Southeast Asia, Progressivism, and great American historians. Historical interpretation is usually emphasized. May be repeated for credit when topic varies.

3509 Studies in Latin American History (3-0)
Survey of a major topic or period in Latin American history, with special emphasis on reading and discussion of significant historiographical interpretations. Typical topics include the Indian in Mexican history, the history of underdevelopment in Latin America, and women and the family in Latin America. May be repeated for credit when topic varies.

3516 Studies in European History (3-0)
Focuses in depth on a theme, movement, or period of significance in European history. Topics could include problems such as: the Renaissance, the Reformation, the Industrial Revolution, the French Revolution, Naziism, modern social history methods; or could be focused on specific countries during a particular period such as Soviet Russia, modern Germany, Tudor-Stuart England, ancient Greece, medieval France, and the like. Historical interpretation is usually emphasized. May be repeated for credit when topic varies.

3518 Studies in African History (3-0)
Survey of a major theme in African history through analysis of various interpretations and comparisons of developments in different geographical areas. Possible topics include the growth of states in the pre-colonial era, slavery and the slave trade, imperialism and the African response, colonial society, racism, economic change and development, and decolonization. Reading and Discussion. May be repeated for credit when topic varies.

3521 Studies in East Asian History (3-0)
Reading and discussion of major interpretative works on specific topics in the significant social, cultural, political, legal, and economic issues in the history of East Asia. May be repeated for credit when topic varies.

3545 Independent Reading (0-0-3)
Exploration of an historical theme or topic mutually agreeable to the professor and student. Substantial reading and writing required; periodic conferences with the professor. *Prerequisite:* Instructor's approval.

SEMINARS

Graduate seminars usually involve discussion of research methodologies and some background reading. But primary emphasis is on research in original resources, with students expected to write a substantial seminar paper based on the research.

3570 Seminar in United States History (3-0)
Focuses in depth on a theme, movement, or period of significance in United States history. Areas from which topics have been chosen in the past include Colonial and Revolutionary America, American Foreign Relations, the Chicano, American Intellectual History, Modern America, the American South, the Civil War and Reconstruction Period, Texas History, the American West, and American Military History. May be repeated for credit when topic varies.

3577 Seminar in Latin American and Border History (3-0)
Focuses in depth on a theme, movement, or period of significance in Latin American or Border history. Areas from which topics have been chosen in the past include all aspects and time periods of Mexican history, nineteenth and twentieth-century problems in

other Latin American countries, Central American history, and major aspects of the U.S.-Mexican border experience. May be repeated for credit when topic varies.

3579 Seminar in African History (3-0)
Introductory readings and research on themes in nineteenth or twentieth century African history. Particular focus on the relations between Africa and Europe and the United States. May be repeated for credit when topic varies.

3582 Seminar in European History (3-0)
Focuses on a theme, movement, or period of significance in European history. Topics could include themes in European history, such as military history, religion and society, family history, women's history, or revolution; or they could concern a particular area and time period such as modern Britain, Soviet Russia, modern Germany, and the like. May be repeated for credit when topic varies.

THESIS AND INDEPENDENT RESEARCH

3590 Public History Internship (0-0-3)
History work experience in a public agency, museum, archive, history consulting business, or other business. Evaluation by work place supervisor and instructor. May be considered for Seminar credit if appropriate project is completed.

3593 Independent Research (0-0-3)
(Open only to Plan II and Plan IV graduate students in history in the final semester of work.)

3595 Problems in Historical Research (0-0-3)
Emphasizes research, with writing and discussion. To be taken in conjunction with History 3593, 3598, or 3599. Students will be required to make a formal presentation of the results of their ongoing research. Grading will be pass/fail; this course cannot be used for credit toward the MA degree. *Prerequisite*: Consent of the graduate advisor.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisite*: HIST 3598.

6595 Problems in Historical Research (0-0-6)
Emphasizes research, with writing and discussion. To be taken in conjunction with History 3593, 3598 or 3599. Students will be required to make a formal presentation of the results of their ongoing research. Grading will be pass/fail; this course cannot be used for credit toward the MA degree. *Prerequisite*: Consent of the graduate advisor.

LIBERAL ARTS INTERDISCIPLINARY STUDIES

Master of Arts in Interdisciplinary Studies

201 Quinn Hall
(915) 747-5129

PROGRAM DIRECTOR: Barthy Byrd

The MAIS program is designed for individuals who, having completed a baccalaureate program or professional degree program at an accredited college or university, wish to expand their knowledge in areas outside of their previous training or present profession. To this end, each student will participate in the design of a plan of study consisting of courses offered by a variety of departments and including core seminars designed specifically for students in the program.

Basic Requirements for Admission

1. A bachelor's degree from an accredited institution in the United States (or proof of equivalent training in a foreign institution).
2. A satisfactory grade-point average in upper-division (junior and senior level) work and in any graduate work already completed.
3. A satisfactory score on the Graduate Record Examination.
4. Submission to the MAIS Advisory Committee of an acceptable Plan of Study.
5. Acceptance by the MAIS Advisory Committee and by the Graduate School.

Specific Requirements for the MAIS Degree

1. Thirty-nine semester hours of course work, no more than nine of which may be in a single disciplinary area, and of which no more than nine may be outside of the College of Liberal Arts. Exceptions to the nine-hour limitations may be made under unusual circumstances. Exceptions must be approved by the MAIS Advisory Committee and by the Graduate School.
2. A minimum of 30 semester hours of graduate courses (those listed 3500 and above); the remaining nine hours may be selected from among graduate level courses and/or upper division undergraduate courses (those listed at the 3300 or 3400 level), if approved for graduate credit.
3. A minimum of six semester hours of course work from among the MAIS core seminars.
4. Successful completion of MAIS 3593: Final Project. The Final Project will be submitted to the committee conducting the student's final oral examination. Upon successful completion of the final examination, two copies of the Final Project will be bound and submitted to the Graduate School.
5. Successful completion of the final oral examination and approval of the Graduate School.

MAIS Core Seminars:

3550 The History of an Idea (3-0)
The historical consideration of a seminal idea or concept drawn from art, ethics, politics, science, religion, or philosophy, and an assessment of its contemporary social and cultural importance. This course may be team-taught and cross-listed with a participating department. May be repeated once for credit when the topic varies.

3560 Contemporary Issues (3-0)
The detailed examination of a contemporary social or cultural concern from a multi-disciplinary perspective. This course may be team-taught and cross-listed with a participating department. May be repeated once for credit when topic varies.

MAIS Final Project

3593 MAIS Final Project
The final project consists of either: 1) two substantially revised or extended papers originally prepared for two of the graduate level courses taken as part of the MAIS program, one of which must have been written for MAIS 3550 or MAIS 3560; or (2) a new interdisciplinary paper which is based on two or more papers prepared for graduate level courses taken as a part of the MAIS program.

Open only to MAIS students in the final semester of their work. If the project is not completed in one semester, students will register for MAIS 3593 during each semester or summer session in which work on the final project is being done, but only three hours of credit will count toward the degree.

MASTER OF FINE ARTS IN CREATIVE WRITING

Worrell Hall 112
(915) 747-5529

PROGRAM DIRECTOR: Leslie Ullman

The MFA with Major in Creative Writing is a program designed to provide the highest professional preparation and training to individuals who wish to pursue careers in writing or the teaching of writing. The program is interdepartmental with a bilingual option: participants may choose to work in either English or Spanish or a combination of the two languages. Degree requirements may be fulfilled by taking courses offered by the English Department and/or the Department of Languages and Linguistics. The MFA curriculum includes classes in creative writing as well as courses in literature and culminates in the writing of a booklength manuscript of original poetry or fiction (thesis).

Admission Requirements

All applicants must meet the General Requirements listed under the Policies and Procedures section of this Graduate Studies catalog. Other specific requirements of the MFA program are as follows.

1. Minimum undergraduate GPA of 3.0.
2. Minimum of 500 on verbal and 500 on the analytical portions of the GRE or other evidence of ability to complete graduate level work.
3. Submit a writing sample (10 poems or 20-30 pages of fiction).
4. Submit a Statement of Purpose, not to exceed three pages.
5. Provide three letters of recommendation.

Specific Requirements

Forty-eight (48) hours of course work, distributed as follows:

Creative writing courses:	18 hours
Literature courses:	18 hours
Electives:	6 hours
Thesis:	6 hours

1. Creative Writing Courses (18 hours) **Semester Hours**

ENGL or SPAN 3564	Forms and Techniques of Fiction	3
ENGL or SPAN 3565	Forms and Techniques of Poetry	3
ENGL or SPAN 3566	Advanced Fiction Writing	3
ENGL or SPAN 3567	Advanced Poetry Writing	3

Six hours from 6

ENGL or SPAN 3568 Special Topics in Creative Writing
ENGL or SPAN 3570 Tutorial in Fiction
ENGL or SPAN 3571 Tutorial in Poetry

2. Literature Courses (18 hours) **Semester Hours**

ENGL 3500 Introduction to Graduate Studies in English
or 3
ENGL 3520 Literary Criticism: Theory and Practice or
SPAN 3501 Critical Approaches to Hispanic Literature

Two courses from period survey and genre courses in English, American, and Spanish-American literature 6

ENGL 3501 British Literature to 1485
ENGL 3502 British Literature 1485-1660
ENGL 3503 British Literature 1660-1832
ENGL 3504 British Literature 1832-Present
ENGL 3505 American Literature to 1860
ENGL 3506 American Literature since 1860
SPAN 3504 Hispanic Essay
SPAN 3511 Indigenous and Colonial Literature
SPAN 3514 Nineteenth Century Spanish-American Literature
SPAN 3515 Premodernist and Modernist Poetry
SPAN 3517 Postmodernist and Contemporary Poetry
SPAN 3519 Spanish-American Short Story
SPAN 3521 Twentieth Century Spanish-American Novel

Two courses from seminars in English and American Literature and Spanish Literature 6

ENGL 3551 Seminar: Studies in British Literature to 1485
ENGL 3552 Seminar: Studies in British Literature 1485-1660
ENGL 3553 Seminar: Studies in British Literature 1660-1832
ENGL 3554 Seminar: Studies in BritishLiterature 1832-Present
ENGL 3555 Seminar: Studies in American Literature to 1860
ENGL 3556 Seminar: Studies in American Literature 1860-Present
SPAN 3532 Spanish Literature to 1500
SPAN 3533 Golden Age Drama
SPAN 3534 Golden Age Prose and Poetry
SPAN 3535 Cervantes
SPAN 3540 The Generation of 1898
SPAN 3541 Twentieth Century Spanish Literature

Analysis of literature from writer's standpoint 3
ENGL 3525 Genre: Theory and Practice or
SPAN 3505 Literary Subgenres: Theory and Practice or
Approved Elective

3. Approved Electives (6 hours) 6

4. Thesis 6
ENGL/SPAN 3598 Thesis
ENGL/SPAN 3599 Thesis

The thesis will consist of a booklength manuscript of original fiction or poetry, accompanied by a preface. The thesis will be prepared under the direction of a three-member supervising committee and will be defended orally.

Descriptions of all courses specified above are contained in the respective listings for the Department of English and Languages and Linguistics.

Languages and Linguistics

136 Liberal Arts
(915) 747-5767, 5801

CHAIRPERSON: Frederick J. Kluck

PROFESSORS EMERITUS: John McCarty Sharp

GRADUATE FACULTY: Amastae, Armengol, Bagby, Blanco, Blansitt, Elerick, Ewton, Garcia, Goodall, Louden, Manley, Montalbetti, Montes, Perez, Ramos, Suarez, Teschner

The department offers two graduate degrees: (1) the MA in Linguistics with options in Applied Linguistics and in Hispanic Linguistics, and (2) the MA in Spanish and the MFA in Creative Writing. Information about the MFA may be found under Liberal Arts Interdisciplinary Studies in this catalog.

Linguistics

Admission to the Program

Students must possess a BA degree in linguistics, in a language, or in some related field. Students choosing to focus on Hispanic linguistics or applied linguistics relating to Spanish should be competent in Spanish, as well as in English. Those choosing to focus on applied linguistics must have completed a course in statistics, which may have been at the undergraduate level.

Degree Requirements (30 hours)

Core (9 hours)

LING 3501 Principles of Linguistic Analysis
LING 3509 Generative Syntax
or
LING 3512 Functionalist Syntax
LING 3520 Phonology

Electives (21 hours)

Students complete their curriculum with 21 additional graduate hours in linguistics. Up to six graduate hours in Spanish may be used in place of linguistics hours for students for whom such course work would be appropriate.

Those who choose to focus on either applied linguistics or Hispanic linguistics should include the following courses among these 21 hours.

Applied Linguistics

LING 3508 Second Language Teaching
LING 3530 Computer-Assisted Language Learning
LING 3548 Second Language Acquisition

Plus the courses in one of the following two groups:

English:

LING 3510 Pedagogical Issues in English Structure

Three additional hours chosen form the following:
LING 3531 Teaching Second Language Composition
LING 3541 Psycholinguistics and Reading
LING 3574 Language Testing
LING 3588 Bilingualism
LING 3589 Problems in Language Instruction

Spanish:

Six hours chosen from the following:
LING/SPAN 3581 Spanish Phonetics and Phonology
LING/SPAN 3582 Spanish Syntax
LING/SPAN 3583 Spanish Morphology
LING/SPAN 3585 Spanish Historical Linguistics

There are both thesis and non-thesis options for all students. The thesis option requires LING 3598 and 3599 in addition to the above requirements, and the non-thesis option requires six additional hours (linguistics electives) and two extended research papers.

Spanish:

Admission to the Program

1. Fulfillment of all general requirements for admission to the Graduate School.
2. A satisfactory score on the Departmental Advanced Spanish examination.

Students seeking conditional admission with deficiencies will be required to complete advanced level undergraduate courses as directed by the Graduate Advisor. Such courses will not count toward the degree.

Requirements

MA in Spanish:

1. Complete 36 hours of work, including the appropriate options chosen from "Required Courses and Subject Areas" listed below. With the approval of the Committee on Graduate Studies, a student may present a minor consisting of 6 to 12 hours in a related field.
2. Complete course 3202 (fourth semester) in a second foreign language with a grade of at least "B", or demonstrate equivalent proficiency.

Must select Plan I or Plan II below:

Plan I (Non-Thesis Option): Submit two graduate seminar research papers, suitably bound, as required by the Graduate School. A prospectus outlining each proposed paper must be approved by the Committee on Graduate Studies. The papers will be defended orally.

Plan II (Thesis Option): Complete Spanish 3598-3599, Thesis, which counts for six of the required 36 hours of work. A prospectus outlining the proposed thesis must be approved by the Committee on Graduate Studies. The thesis will be defended orally.

Required Courses and Subject Areas:

In order to ensure a balanced course of study, all students must complete 21 credit hours distributed as follows:

I. Required Course: Spanish 3501
II. Required subject areas:
  (A) Spanish peninsular literature:
    1. One course in Golden Age (Spanish 3533, 3534, or 3535)
    2. One course in Twentieth Century (Spanish 3540 or 3541)
  (B) Spanish American literature:
    1. One course in Prose Fiction (Spanish 3519 or 3521)
    2. One course in Poetry (Spanish 3515 or 3517)
  (C) Hispanic linguistics:
    1. One course. Students who have not taken Spanish/Linguistics 3309 (or the equivalent) prior to undertaking MA course work will be required to take this course, which will count for credit toward the MA. Those who have completed 3309 before entering the master's program will be required to complete one of the following: 3472, 3585, or 3588.
  (D) One course selected from among the following:
    1. Spanish 3504
    2. Spanish 3535
    3. A second course in Hispanic linguistics

For Undergraduate and Graduate Students

FRENCH

3401 Methods of Foreign Language Instruction (3-0)
3487 Poetry (3-0)
3488 Prose (3-0)
3489 Theater (3-0)
3490 Topics in French (3-0)

GERMAN

3401 Methods of Foreign Language Instruction (3-0)
3487 Poetry (3-0)
3488 Prose (3-0)
3489 Theater (3-0)
3490 Topics in German (3-0)

LINGUISTICS

3401 Methods of Foreign Language Instruction (3-0)
3406 Language Acquisition (3-0)
3416 Psychology of Language (3-0)
3448 Analyses of Second Language Acquisition (3-0)
3471 Studies in Linguistics (3-0)
3472 Contrastive Linguistics: Spanish/English (3-0)

PORTUGUESE

3490 Topics in Portuguese (3-0)

SPANISH

3401 Methods of Foreign Language Instruction (3-0)
3424 The Literature of Mexico (3-0)
3428 Golden Age Drama (3-0)
3435 Nineteenth Century Spanish Novel (3-0)
3441 Modern Drama (3-0)
3439 The Short Story (3-0)
3458 Twentieth Century Spanish Literature (3-0)
3460 Twentieth Century Spanish American Novel (3-0)
3461 Cervantes (3-0)
3463 Spanish American Poetry (3-0)
3472 Contrastive Linguistics: English/Spanish (3-0)
3490 Topics in Spanish (3-0)

TRANSLATION

3481 Commercial and Legal Translation (3-0)
3482 Translation from the Information Media (3-0)
3483 Literary Translation (3-0)
3484 Introduction to Interpreting (3-0)
3489 Topics in Translation (3-0)
3490 Senior Project in Translation (3-0)

For Graduate Students Only

FRENCH (FREN)

3590 Topics in French (3-0)

LINGUISTICS (LING)

1507 Seminar in Special Topics in Linguistics (1-0)

3501 Principles of Linguistic Analysis (3-0)
A survey of the precepts and procedures of modern linguistic analysis with special attention to the fundamentals of phonetics, phonology, and syntax.

3508 Second Language Teaching—English (3-0)
A study of the principles underlying modern second-language teaching, and their application, with particular reference to English as a second language. Includes use of audio-visual equipment.

3509 Generative Syntax (3-0)
An investigation of the syntax of natural language from the perspective of modern generative grammar. *Prerequisite*: LING 3302 or LING 3501 or equivalent background.

3510 Pedagogical Issues in English Structure (3-0)
The structure of English grammar from the perspective of pedagogical concerns.

3512 Functionalist Syntax (3-0)
A study of Tagmemic and Paris School grammatical frameworks. Analysis of languages of a wide typological range.

3519 English Historical Linguistics (3-0)
An investigation into the origins of English as an Indo- European language and as a Germanic language. Reading of texts of historical interest. Attention to the nature of linguistic change. Examination and use of standard research tools.

3520 Phonology (3-0)
The phonetic basis of modern phonological analysis; phonological systems and structures; theory and practice in phonological analysis.

3530 Computer-Assisted Language Learning (3-0)
An investigation of the use of computer to enhance second language learning. Includes the study of current research and developing skills for using computers effectively.

3531 Teaching Second Language Composition (3-0)
A study of the writing process in second-language learning and the principles and practice of teaching composition to this population.

3541 Psycholinguistics and Reading (3-0)
An inquiry into the fundamental aspects of the reading process—linguistic, psychological, and physiological.

3548 Second Language Acquisition (3-0)
An investigation of the results and techniques of current research in second language acquisition, with some attention to implications for second language teaching.

3570 Study in Language (3-0)
Topic to be discussed will be selected. May be repeated for credit when topic varies.

3573 Linguistic Variation (3-0)
A study of linguistic varieties and variation; particular attention to methods and hypotheses of different approaches.

3574 Language Testing (3-0)
A study of the principles of effective language testing, with special attention to second-language testing.

3578 Language Universals and Typology (3-0)
A survey of findings regarding language and typology and language universals. Attention to major questions that motivate ongoing research.

3581 Spanish Phonetics and Phonology (3-0)
Analysis of the sounds and sound patterns of Spanish. *Prerequisites*: LING 3501 and LING 3520.

3582 Spanish Syntax (3-0)
A survey of the major syntactic phenomena of Spanish. *Prerequisites*: LING 3501 and LING 3509.

3583 Spanish Morphology (3-0)
A course designed for language teachers involving study of psychological, linguistic, and methodological aspects of language instruction and testing, especially with reference to English. May be repeated for credit when topic varies.

3585 Spanish Historical Linguistics (3-0)
A study of the origins of Spanish as a reflex of Latin and as a Romance language. Reading of texts of historical interest. Attention to the nature of linguistic change. Examination and use of standard research tools.

3588 Bilingualism (3-0)
A study of the formal and sociolinguistic dimensions of bilingualism. Attention to aspects of language planning and linguistics as a contributing factor in the devising of public policy.

3589 Problems in Language Instruction (3-0)
A course designed for language teachers involving study of psychological, linguistic, and methodological aspects of language instruction and testing, especially with reference to English. May be repeated for credit when topic varies.

3590 Research Methodology and Bibliography for Applied English Linguistics (3-0)
A thorough examination of bibliographies, abstracts, catalogues, indexes, and other serial/non-serial research tools, along with research design and investigative theories in applied linguistics. *Prerequisite*: LING 3509 or LING 3520. Recommended prerequisite or co-requisite PSYC 3103 or equivalent.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisite*: LING 3598.

SPANISH (SPAN)

GENERAL

3501 Critical Approaches to Hispanic Literature (3-0)
Examination of historical and contemporary literary analysis, techniques, and theories, and their application to Spanish-language prose, poetry, theater, and essays. Required of all MA candidates.

3502 Independent Study (0-0-3)
Subject to be determined in consultation with the Graduate Advisor. *Prerequisite*: Departmental approval.

3503 Special Topics (3-0)
An examination of a particular area of Hispanic languages or literature. May be repeated for credit as topic changes. *Prerequisite*: Departmental approval.

3504 The Hispanic Essay (3-0)
The development and influence of the essay in the Hispanic world. Included in the readings are both Peninsular and Latin American writers.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisite*: SPAN 3598.

SPANISH AMERICAN LITERATURE

3511 Indigenous and Colonial Literature of Spanish America (3-0)
Readings in Spanish translations of important works of the Mayan, Nahuatl, and Incan cultures. Selected works of Hispanic discoverers, conquistadors, and literati from 1492 through the eighteenth century.

3514 Nineteenth Century Spanish-American Literature (3-0)
Study of major Spanish-American works of the nineteenth century exclusive of Modernism; notably, Neoclassic and Romantic poetry, Romantic and Realist narrative, and Gauchesque poetry.

3515 Premodernist and Modernist Poetry (3-0)
Readings in the works of major Spanish poets of the nineteenth and early twentieth century, with special attention placed upon Ruben Dario and his school.

3517 Postmodernist and Contemporary Poetry (3-0)
Readings in the works of major Spanish-American poets from approximately 1910 to the present.

3519 Spanish-American Short Story (3-0)
Development of the short story form in Spanish America from its origin in the nineteenth century to the present.

3521 Twentieth Century Spanish-American Novel (3-0)
Readings from selected works of contemporary Spanish-American novelists.

SPANISH LITERATURE

3532 Spanish Literature to 1500 (3-0)
A study of the most representative works of medieval and early renaissance Spain, including *El Cid, Las Cantigas de Santa María, El Libro de Buen Amor/El Conde Lucanor, El Romancero,* and *La Celestina.*

3533 Golden Age Drama (3-0)
Readings in major works of Spain's classical theater, by authors such as Lope de Vega, Tirso de Molina, and Calderon de la Barca.

3534 Golden Age Prose and Poetry (3-0)
Representative readings from Spain's major poets and/or writers of the sixteenth and seventeenth centuries.

3535 Cervantes (3-0)
A thorough reading and substantial analysis of *El Ingenioso Hidalgo Don Quixote de la Mancha,* plus two or three of the *Novelas Ejemplares.*

3540 The Generation of 1898 (3-0)
Selections from the writings of important members of this literary generation, including Unamuno, Azorin, Ortega y Gasset, Baroja, and Antonio Machado.

3541 Twentieth Century Spanish Literature (3-0)
Readings in the works of modern Spanish literature, with emphasis on poetry and/or narrative prose fiction written after the Generation of 1898 to the present.

3552 Spanish Literature to 1500 (3-0)
A study of the most representative works of medieval and early renaissance Spain, including *El Cid, Las Cantigas De Santa Maria, El Libro De Buen Amor, El Conde Lucanor, El Romancero,* and *La Celestina.*

HISPANIC LINGUISTICS

3581 Spanish Phonetics and Phonology (3-0)
Analysis of the sounds and sound patterns of Spanish. *Prerequisites*: LING 3501 and LING 3520.

3582 Spanish Syntax (3-0)
A survey of the major syntactic phenomena of Spanish. *Prerequisites*: LING 3501 and LING 3509.

3583 Spanish Morphology (3-0)
Analysis of the major morphological structures of Spanish. *Prerequisite*: LING 3501.

3585 Spanish Historical Linguistics (3-0)
A study of the origins of Spanish as a reflex of Latin and as a Romance language. Reading of texts of historical interest. Attention to the nature of linguistic change. Examination and use of standard research tools.

3588 Bilingualism (3-0)
A study of the formal and sociolinguistic dimensions of bilingualism. Attention to aspects of language planning and linguistics as a contributing factor in the devising of public policy.

3589 Problems in Language Instruction (3-0)
A course designed for language teachers involving study of psychological, linguistic, and methodological aspects of language instruction and testing. Same as LING 3589. May be repeated once for credit when topics vary.

CREATIVE WRITING

3505 Literary Subgenres: Theory and Practice (3-0)
Study of the theory and techniques implied in a specific literary subgenre such as the detective novel, the fantastic short story, the autobiographical essay, mystical poetry, etc. Course may be repeated for credit when topic varies.

3564 Forms and Techniques of Fiction (3-0)
A course in directed reading and writing that leads the student to an understanding of the creative process through analysis and imitation of important contemporary works of fiction. May be repeated once.

3565 Forms and Techniques of Poetry (3-0)
A course in directed reading and writing that leads the student to an understanding of the creative process through analysis and imitation of important contemporary works of poetry. May be repeated once.

3566 Advanced Fiction Writing (3-0)
Intensive study and practice in the various forms and approaches within the writing of fiction, including workshop discussion of individual student manuscripts. May be repeated once under a different instructor.

3567 Advanced Poetry Writing (3-0)
Intensive study and practice in the various forms and approaches within the writing of poetry, including workshop discussion of individual student poems. May be repeated once under a different instructor.

3568 Creative Writing Seminar (3-0)
A variable topics course that provides intensive practice and study in one of the genres of imaginative writing, such as novel writing, screenwriting, non-fiction freelancing, or biography/autobiography. May be repeated when topic varies.

3570 Tutorial in Fiction (3-0)
Advanced workshop course in which student is guided towards the production of works of fiction of professional quality. May be repeated once for credit.

3571 Tutorial in Poetry (3-0)
Advanced workshop course in which student is guided towards the production of works of poetry of professional quality. May be repeated once for credit.

Music

301M Fox Fine Arts
(915) 747-5606

CHAIRPERSON: Ron Hufstader

GRADUATE FACULTY: Cardon, Fountain, Hufstader, Packales, Paul, Ross, Tredway, Trimble, White

Master of Music

The Master of Music degree is offered in two majors: Performance (instrumental, vocal, conducting, or composition) which specializes in the study of a performing medium; and Music Education, which is designed for advanced training in the teaching profession.

Specific Requirements for the Master of Music in Performance

1. A Bachelor's degree in Music or its equivalent.
2. Acceptance into the performance program via audition with a three-person panel of area faculty. Vocal majors must demonstrate knowledge of Italian, French, German, Latin, and English diction.
3. Completion of the following required courses with a "B" or above.

   3 hours MUSL 3571 Bibliography and Research
   3 hours MUSE 3596 Pedagogy of Vocal Music, OR
   MUSE 3597 Pedagogy of Instrumental Music

2 hours	MUST	2517	Theory of Twentieth Century Music
2 hours	MUSL	2511	Music History
9 hours	MUSA	3591	Applied Music
3 hours	MUSG	3598	Thesis
3 hours	MUSG	3599	Thesis
6 hours	Electives		(Eligible upper level undergraduate courses may be accepted)
31 hours	TOTAL		

The thesis sequence includes both a Master's recital and a written thesis documenting that recital. A final oral examination on the thesis is also required.

Specific Requirements for the Master of Music in Music Education

1. A Bachelor's degree in Music or its equivalent with certification to teach music in the public schools or significant and equivalent professional teaching experience.
2. Acceptance into the music education program via the approval of a three-person panel of area faculty after appropriate interviews and/or auditions.
3. Completion of the following required courses with a "B" or above:

3 hours	MUSL	3571	Bibliography and Research
3 hours	MUSE	3596	Pedagogy of Vocal Music, OR
	MUSE	3597	Pedagogy of Instrumental Music
2 hours	MUST	2517	Theory of Twentieth Century Music
2 hours	MUSL	2511	Music History
3 hours	MUSE	3531	Music Education
3 hours	MUSG	3535	Field Work in Music
4 hours	MUSA	2581	Applied Music OR
	MUSA	2561	Applied Music
3 hours	MUSG	3598	Thesis
3 hours	MUSG	3599	Thesis
6 hours	Electives		
32 hours	TOTAL		

No recital is required in the Music Education program. The thesis sequence includes the submission of a research thesis on a pedagogical topic. A final oral examination on the thesis is also required.

For Undergraduate and Graduate Students

The following undergraduate courses may be included in the Graduate Programs with permission of the Graduate Advisor.

MUST 2315	Analytical Process in Music (2-0)
MUST 2316	Theory Seminar (2-0)
MUST 3319	Advanced Composition (3-0)
MUSL 2319	Music in the Middle Ages and Renaissance (2-0)
MUSL 2320	Music in the Baroque Period (2-0)
MUSL 2321	Music in the Viennese Classical Period (2-0)
MUSL 2322	Music in the Late Romantic Period (2-0)
MUSL 2323	Music in the Twentieth Century
MUSL 2328	Topics in Music History
MUSL 2330	World Music Seminar
MUSL 3325	Music on the Border (3-0)
MUSB 2343	History of Ballet (2-0)
MUSB 2344	History of Ballet (2-0)
MUSA 2353	Music Theatre Workshop (2-0)
MUSA 2354	Music Theatre Workshop (2-0)
MUSA 2493	Pedagogy of Voice (2-0)

For Graduate Students Only

Applied Music (MUSA)

2561 Applied Lessons (0-0-2)
Used by Music Education majors to develop playing skills on a new secondary instrument.

2581 Applied Lessons (0-0-2)
It can be used as: 1) a secondary applied area for a performance major; 2) the principal applied area for a music education major; or 3) an elective by graduate students in fields other than music. Admission requires proficiency of upper-level undergraduate major as certified either by audition or the previous undergraduate upper-level number admission. Supplemental Tuition and Coaching fee required.

3561 Applied Lessons (0-0-3)
Used by Music Education majors to develop playing skills on a new secondary instrument.

3581 Applied Lessons (0-0-3)
It can be used as: 1) a secondary applied area for a performance major, 2) the principal applied area for a music education major; or 3) an elective by graduate students in fields other than music. Admission requires proficiency of upper-level undergraduate major as certified either by audition or the previous undergraduate upper-level number admission. Supplemental Tuition and Coaching fee required.

3591 Applied Lessons (0-0-3)
For performance majors. Requires acceptance into degree program by a three-person committee of area faculty. Supplemental Tuition and Coaching fee required.

Education (MUSE)

3531 Problems in Music Education (3-0)
Educational research in the elementary and secondary school fields. Students may conduct research on a problem of their own selection in a field of major interest. May be repeated for credit. *Prerequisites*: Twelve semester hours of advanced courses in Music and a bachelor's degree.

3596 Pedagogy of Vocal Music (0-0-3)
A study of pedagogical materials and methods for use in teaching vocal music at various instructional levels.

3597 Pedagogy of Instrumental Music (0-0-3)
A study of pedagogical materials and methods for use in teaching instrumental music at various instructional levels.

General (MUSG)

3535 Field Work in Music (0-0-3)
The student works individually on a selected topic with an assigned specialist in that area under supervision of area specialist. May be repeated for credit. *Prerequisites*: Twelve semester hours of advanced courses in Music and a bachelor's degree.

3536 Independent Study (0-0-3)
Independent academic study for students in the Master of Music Degree Program.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisite*: MUSG 3598.

Literature and History (MUSL)

2511 Selected Topics in Music History (0-0-2)
Historical examination of important musical documents selected from the Medieval, Renaissance, Baroque, Classic, Romantic, and Contemporary periods.

3514 Music History Survey (3-0)
Music history survey from Middle Ages to twentieth century. Emphasis on stylistic identification of scores and performances. Will not count for Master of Music degree.

3571 Bibliography and Research (3-0)
A study of research methods and materials designed to equip the student for scholarly research. Includes research project.

Theory (MUST)

2517 Theory of Twentieth Century Music (2-0)
Survey of important theoretical systems used to analyze twentieth-century music including those of Schoenberg, Hindemith, and Schenker.

3513 Survey of Music Theory (3-0)
Theory of the common practice period in western music. Includes figured bass realization, soprano harmonization, ear-training, harmonic analysis, and form. Will not count for Master of Music degree.

Philosophy

113, Hudspeth Hall
(915) 747-6617

PROGRAM DIRECTOR: Peter Robinson
GRADUATE FACULTY: Haddox, Hall, Robinson

The Philosophy Department does not offer a graduate-level degree, but it regularly offers graduate courses that may be used towards graduate degrees in other disciplines.

For Graduate Students Only

Philosophy (PHIL)

3551 World Historical Philosophers (3-0)
A detailed study of the life, writings, and influence of one or a few selected philosophers. Usually Plato, Aristotle, Kant, and Hegel are treated in a sequence of offerings of this course. May be repeated when the course content varies.

3552 Basic Philosophical Issues (3-0)
Contemporary philosophical theories of perception and cognition, philosophical anthropology, the technological society, and new religious sensibilities have been topics.

3553 Independent Study (0-0-3)
Student research under supervision of the faculty. *Prerequisite*: Instructor's approval.

Political Science

210 Benedict Hall
(915) 747-5227

CHAIRPERSON: Robert H. Webking
GRADUATE FACULTY: Agor, Bath, Clingermayer, Graves, Kruszewski,Neighbor, Peterson, Price, Rocha, Schmidt, Segal, Staudt, Villarreal, Weaver, Webking

PROGRAMS

Political Science graduate students may pursue one of two graduate programs, choosing among the Master of Arts degrees and the Master in Public Administration degree.

MASTER OF ARTS IN POLITICAL SCIENCE

BASIC REQUIREMENTS FOR ADMISSION TO THE MA PROGRAM

1. Bachelor's degree from an accredited college or university with a degree in Political Science or a related area;
2. Satisfactory GRE or GMAT score as determined by the Department's Graduate Studies Committee;
3. Satisfactory GPA (3.0) in all upper-division undergraduate work.

SPECIFIC REQUIREMENTS FOR THE MA DEGREE

The Master of Arts in Political Science requires thirty hours: twenty-four hours of course work and six hours for the thesis. There must be a minimum of twenty-one hours, including POLS 3598 and 3599, of graduate level courses (those numbered 3500 and above). No more than nine hours of elgible 3300 and 3400 courses, taken for graduate credit, are permitted in a program. No more than six of these hours may be included in the major and no more than three in a possible minor.

A six to nine hour minor in a related field is permitted, such courses to be selected in consultation with the Graduate Advisor.

The MA Degree Plan shall include:

A. Research Preparation (3 hours)
   3500 Research Methods in Political Science
B. Three (3) of the following seminars from among five (5) general fields: (9 hours)
   1. 3510 Political Participation
   2. 3520 Public Law
   3. 3530 International Politics OR
      3533 Comparative Politics
   4. 3542 American Political Thought
   5. 3551 Administrative Theory
C. Four (4) electives from among the specialized 3500 level seminars offered in the sub-fields of Political Science; or, with the advice of the Graduate Advisor, two (2) electives from Political Science and two (2) from a related minor field, or one (1) from Political Science and three (3) from the minor field. (12 hours)
D. Two (2) Thesis courses: (6 hours)
   3598 Thesis
   3599 Thesis

Total Hours: 30

MASTER IN PUBLIC ADMINISTRATION

The Master in Public Administration (MPA) degree provides professional education for students interested in public service careers. The program is designed to stress the knowledge, skills, values, and behavior essential to the successful public servant. Some flexibility in curriculum is permitted to meet the diverse educational needs of pre-entry and in-career students, changing career students, and students in different career specialties in public administration. The curriculum components are designed to produce professionals capable of intelligent and creative analysis, communication, and action in the public sector context.

BASIC REQUIREMENTS FOR ADMISSION TO THE MPA PROGRAM

1. Bachelor's degree from an accredited college or university;
2. Satisfactory GRE or GMAT score as determined by the Department's Graduate Studies Committee;
3. Satisfactory GPA (3.0) in all upper division work;
4. All students must have the course equivalent of three hours of Public Administration and three hours of American Government as a prerequisite to the graduate seminars in the MPA Program;
5. In-career students may be requested to submit vitae of their professional work and letters of recommendation to complete the evaluation for admission and eligibility to enroll in certain courses.

SPECIFIC REQUIREMENTS FOR THE MPA DEGREE

Completion of at least 42 semester hours of course work consisting of the following:

1. At least 27 hours of courses in the theoretical, methodological, and technical components of public management;
   POLS 3500 Seminar in Research Methods in Political Science
   POLS 3550 Seminar in Administrative Theory
   POLS 3551 Seminar in Advanced Research Methods in Public Administration
   POLS 3552 Seminar in Financial Management Administration
   POLS 3553 Seminar in Human Resources Management
   POLS 3554 Seminar in Administrative Law and Regulation
   POLS 3558 Administrative Ethics and Responsibilities
   POLS 3562 Seminar in Public Sector Accounting
   POLS 3564 Seminar in Public Policy Analysis

Selected MBA core courses may be substituted for some of these courses, depending on course offerings by each program. Advance approval of MPA director is required for substitution.

2. Completion of an additional 12 hours of approved electives. No more than six hours of electives can be at the 3300 and 3400 level in courses approved for graduate level credit.
3. Satisfactory performance in a comprehensive written final examination of six hours length, in the core subject areas of public administration. Students are required to enroll in and successfully complete POLS 3567 before being permitted to take the exam. (POLS 3567 is not included in either the 27 hours of requirements or the 12 hours of electives.) A student may repeat the comprehensive exam only once if failed and must also re-enroll in POLS 3567 before doing so.
4. Upon admission, the MPA Director may direct students who do not already possess significant administrative experience to enroll in POLS 3566 (Internship in Public Administration) as part of their 12 hour elective requirement.

Those students who want to take courses in Criminal Justice to satisfy the 12 hour elective requirement for the MPA degree must take the following courses:

CRIJ 3500 Seminar in Criminal Justice Administration;
CRIJ 3508 Seminar in Juvenile Justice;
CRIJ 3520 Seminar in Corrections;
CRIJ 3540 Seminar in Selected Topics;

TWO DEGREE OPTION—MPA/MBA

Students may also enroll in a two-degree option MPA-MBA program. The objective of this program is to permit students with broad interest in both the public and private sectors to double register in both the MPA and MBA programs. With the increasing interdependence of the public and private sectors, this option is attractive to those students wishing to pursue careers in positions responsible for working with their counterparts in private or public organizations. In order to be admitted into the two-degree option, the applicant must specify the option *at the time of application to the Graduate School.* Students who wish to enter either the MPA or MPA-MBA programs should consult with the Director of the MPA program with regard to admission, required courses, approved electives, petition for candidacy, and comprehensive examinations.

SPECIFIC REQUIREMENTS FOR THE MPA-MBA TWO-DEGREE OPTION

1. Students must meet all requirements for admission to both programs.
2. The same leveling work required of an MBA student without a BBA will be required, subject to the waiver procedures currently operative in the MBA program.
3. The program consists of 27 hours of core MPA courses, 24 hours of core MBA courses, POLS 3567, and a comprehensive written exam in the core subject areas of public administration, plus any additional required courses. The number of hours necessary to complete the two-degree option will vary depending upon each student's background and previous academic work.
4. The core curriculum in each of the separate degree programs must be satisfactorily completed.
5. Electives must be approved by the academic advisor of both programs; upon such approval, the core courses of one program may be used to meet the elective requirements of the other.
6. Admission and continuance decisions are handled separately by the MPA and MBA graduate committees and by the Graduate School.

REGISTRATION

No student may be registered as a graduate student of the Department of Political Science without the advice of, and signed approval of his/her program by, the Graduate Advisor for MA students or the Advisor for the MPA program for MPA students. This applies not only to the initial registration, but to all subsequent enrollments.

SATISFACTORY PERFORMANCE

Satisfactory performance in all graduate programs of the Department of Political Science is defined as maintaining a 3.0 grade average. A student in any of these programs receiving a grade of C or lower in two courses taken for graduate credit will be dismissed from the graduate program.

For Undergraduate and Graduate Students

The following undergraduate courses have been approved for graduate credit. Enrollment in them must be in consultation with the graduate advisor:

3310	Political Socialization and Political Culture
3313	Public Opinion and Public Policy
3332	Political Geography
3333	State and Society
3353	State Administration
3410	The Legislative Process
3411	The Presidency
3414	Women, Power and Politics
3421	Philosophy of Law
3431	Relations of Post-Communist States
3433	European Politics
3434	Regional Politics
3436	Caribbean and Central American Politics
3438	Relations Between the United States and Mexico
3441	Democracy
3442	Contemporary Political Thought

For Graduate Students Only

ALL SEMINARS may be repeated for credit when the topic varies.

Political Science (POLS)

American Political Processes

3510 Seminar in Political Participation (3-0)
Public political behavior in parties, interest groups, and elections.

3511 Seminar in Racial, Ethnic, Gender Politics in America (3-0)
An analysis of race, ethnicity, class, and gender in American politics, with emphasis on such concepts as multi-culturalism, assimilation, alienation, and separatism.

3512 Seminar in Political Leadership (3-0)
A study of the theoretical and practical foundations of leadership behavior, including the styles and interactions, confrontational as well as collaborative, of persons in various positions of political authority.

3513 Seminar in Political Communication (3-0)
The study of the formation of shared public perceptions through various media and the analysis of their political effects.

3514 Seminar in Urban Politics (3-0)
Politics in the urban environment, with emphasis upon the effects of heterogeneity and pluralism.

Public Law

3520 Seminar in Public Law (3-0)
Covers a wide range of substantive and/or procedural topics in public law and/or the sociological analysis of the functioning of law.

3521 Seminar in Judicial Process and Behavior (3-0)
An analysis and evaluation of the judicial process and trial and appellate judges' behavior in state and federal courts, including the organization of courts, judicial recruitment and appointment, judicial decision making, and the implementation and effects of judicial policies.

3522 Seminar in Comparative Law (3-0)
A study of the differences in substance, procedure, methods, and ways of thinking between the United States and countries of the civil law tradition (most European countries, Mexico, and Latin American countries).

Comparative and International Politics

3530 Seminar in International Politics (3-0)
Examines the political structures and the interactions that characterize the global nation-state political system.

3531 Seminar in International Organizations and International Law (3-0)
Focuses on the creation and operation of international organizations, both state and non-state based, and on the continuing evolution of international law.

3532 Seminar in Foreign Policy Decision Making (3-0)
Examines in detail the process of decision making within individual international actors and the cumulative effects of such decisions.

3533 Seminar in Comparative Politics (3-0)
Study of comparative political systems, including comparative political cultures. Emphasis on the methodology of comparative politics.

3534 Seminar in the Politics of Developing Countries (3-0)
Focuses on the politics and economics of developing nations in global context.

3535 Seminar in Post-Communist Transition (3-0)
Focuses on the politics and economics of selected countries undergoing post-communist transition.

3536 Seminar in Southwestern Border Politics (3-0)
United States-Mexico relations as they affect the international frontier, with emphasis upon political leadership, ethnicity, and institutions.

3537 Seminar in Latin American Politics (3-0)
A study of the political systems of Latin America. Offerings of the course may focus upon one country, regions, or all of Latin America.

3603 Seminar in Cultural, Linguistic, and Political Borders (3-0)
This seminar provides an interdisciplinary immersion into cultural, linguistic, and political issues in the U.S.-Mexico border region, their policy implications, and the challenges posed to policy solutions amid political-administrative divisions. Course participants will be expected to work as teams in problem-solving experiences designed to go beyond the readings and classroom to make use of the border context.

Political Theory

3540 Seminar in Ancient and Medieval Political Philosophy (3-0)
Study of the works of major western political philosophers of the ancient and medieval periods.

3541 Seminar in Modern Political Philosophy (3-0)
Study of the works of major western political philosophers from the modern period.

3542 Seminar in American Political Thought (3-0)
Study of American political thought with special focus upon the founding.

Public Administration

3550 Seminar in Administrative Theory (3-0)
Basic introduction to the major theories and approaches which form the basis for the practice of public administration. (MGMT 3511 may be substituted, with permission of MPA advisor).

3551 Seminar in Advanced Research Methods in Public Administration (3-0)
Practical in-the-field application of quantitative and methodological techniques by government agencies, with special emphasis on microcomputers. The seminar usually will be taken during the second semester of graduate study.

3552 Seminar in Financial Management and Administration (3-0)
Analysis of the concepts and theories of public fiscal administration. Emphasis is placed on budgeting, accounting, purchasing, and debt administration. (FIN 3505 may be substituted, with permission of MPA advisor.)

3553 Seminar in Human Resources Management (3-0)
The study of the social, political, and legal dimensions of public personnel management with emphasis on human resources, development, and implementation. (MGMT 3522 may be substituted, with permission of MPA advisor.)

3554 Seminar in Administrative Law and Regulation (3-0)
The legal problems of the administrative process, including the uses of administrative discretion, fact-finding, and hearing procedures, and the methods and scope of judicial review of administrative decisions.

3555 Seminar in Comparative Public Administration (3-0)
A comparative view of government administration in developed and developing countries. Examines both the effects of culture on government bureaucracy and the efforts of governments to promote socioeconomic development. May include emphasis on U.S.-Mexico border administration.

3556 Seminar in Non-Profit Sector Administration (3-0)
Examines the special administrative challenges in the nonprofit sector, with attention to practical management and problem-solving. Includes topics such as the nature and scope of the nonprofit sector, fund raising, volunteer management, government and public relations, and the organization of nonprofit institutions.

3557 Women and Men in Management (3-0)
Analyzes gender diversity in public and private institutions.

3558 Administrative Ethics and Responsibility (3-0)
The course deals with ethical issues that face public administrators—responsibilities, accountability, discretion, the public interest, professionalism, codes of ethics, and corruption. It focuses on applied ethics and the reasoning process administrators can use to analyze and evaluate ethical dilemmas.

3559 Seminar in Regional and Urban Planning (3-0)
Covers planning topics associated with satisfying area-wide service needs in urban and regional environments. Topics may include land-use regulations, capital facilities siting, and transportation planning.

3560 Seminar in Urban Administration (3-0)
Public Administration at the level of service delivery with emphasis upon the management and policy problems facing local agencies.

3561 Seminar in Political Economy (3-0)
Teaches how political and economic theory, tools, and techniques can be used to analyze public policy issues and problems. Substantive topics may vary with instructor.

3562 Seminar in Public Sector Accounting (3-0)
Examination of the public sector and non-profit accounting process including the preparation of annual financial reports, transaction analysis, auditing, and cost analysis for grants and service efforts.

3563 Seminar in Intergovernmental Relations (3-0)
Covers the interrelationships among international, national, state, and/or local governmental institutions in the policy making, executive, and/or administrative processes. The special issue of states and communities situated on international borders is also discussed.

3564 Seminar in Public Policy Analysis (3-0)
The study of the politics of the policy making process. Emphasis is on the actors involved in public policy-making, their interactions, and the outputs of the policy process.

3565 Seminar in Policy and Decision Making (3-0)
The use of quantitative decision tools and formal modeling in legislative, executive, and judicial policy making and evaluation processes.

3566 Internship in Public Administration (0-0-20)
Practical internship experience with a public or nonprofit sector agency, selected in consultation with the MPA program advisor. The experience consists of at least twenty hours of work per week with the selected agency. The internship will be under close supervision by the agency and the MPA program advisor.

3567 Comprehensive Integration of Public Administration (3-0)
The course is designed to prepare the student for the final comprehensive examination in public administration. Key management concepts, issues, and value concerns in the subject areas of public administration are reviewed and integrated. This course is taken in the student's final semester in the MPA program.

General

3500 Seminar in Research Methods in Political Science (3-0)
Basic introduction to quantitative and methodological techniques in the field for students in both the MA and MPA programs. Required of all graduate Political Science majors. The seminar usually is taken during the first semester of graduate study. (MPA students may substitute ECON 3501 or QMB 3511 with the permission of the MPA advisor).

3580 Selected Problems in Government (3-0)
Independent study, research, and writing on a topic agreed upon by student and professor.

3598 Thesis (0-0-3)
As part of this course, the student will successfully prepare and defend a prospectus for the MA thesis. The prospectus must be approved by the student's thesis committee, and failure to meet this requirement within two long semesters will preclude continuation of the student in the MA program. *Prerequisite*: Instructor's approval.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisites*: POLS 3598 and instructor's approval.

Psychology

112 Psychology Building
(915) 747-5551

CHAIRPERSON: Randolph H. Whitworth

GRADUATE FACULTY: Ahadi, Barrientos, Cohn, Crites, Devine, Ellis, Goggin, Hosch, Lucker, Malpass, Moss, Schneider, Shaw, Tomaka, Whitworth, Wood, Zárate

GENERAL REQUIREMENTS FOR GRADUATE PROGRAMS IN PSYCHOLOGY

ADMISSIONS REQUIREMENTS

Before being admitted into any graduate program, either MA or PhD, the applicant's undergraduate preparation must include a course in psychological statistics and 12 hours of upper division courses including a course in experimental psychology.

Although applications are accepted by the Graduate School throughout the year, decisions regarding applications for admission to the graduate programs in Psychology are made once per year, for the fall term. Applicants must submit all required documents by February 1. Applications not completed by February 1 will be considered for admission for the following year. Decisions regarding admissions are made by the Psychology Graduate Program Committee and the Graduate School. Admission is competitive and limited by departmental resources.

In addition to the General Requirements for Admission into a Graduate Program established by the Graduate School, the Psychology Department requires that specific documents be sent directly to the Graduate Program Director to complete the application process for graduate programs in Psychology. The address to which these documents must be sent is:

Graduate Program Director
Department of Psychology
University of Texas at El Paso
El Paso, Texas 79968-0553

The documents required are:

1. A copy of the completed application for admission submitted to the Graduate School;
2. A copy of all transcripts submitted to the Graduate School;
3. A copy of official GRE aptitude test scores (note: the Psychology Department requires GRE scores of all applicants regardless of other advanced degrees);
4. A two to three page personal statement outlining your experiences, skill, training, and career goals and how the program will benefit your professional development, and
5. Three letters of reference from informants who can evaluate your potential for graduate academic work and future professional contributions.

DEPARTMENTAL ACADEMIC STANDARDS

In addition to the University requirement that all students admitted into graduate programs must maintain an overall cumulative grade-point average of 3.0 or better in all upper division and graduate courses, the Department of Psychology requires in all graduate programs that: (1) students earn a grade of "B" or better in those courses that are taken to meet the minimum core course requirements; and (2) students who receive a grade of "C" or lower in two courses be dismissed from the program.

Students who earn a grade of "C" or lower in a required core course must retake the course the next time it is offered and earn a grade of "B" or better. Courses taken for graduate credit are not eligible for grade replacement; thus, the original grade earned will remain on the student's graduate record and be used in calculating the overall GPA. A student who fails in two attempts to earn a grade of "B" or better in a required core course will be dismissed from the program.

Students may not count more than six hours of advanced undergraduate courses for graduate credit. The following courses are approved for undergraduate and graduate credit:

3401 Psychological Testing (3-0)
3409 History and Systems of Psychology (3-0)
3410 Clinical Psychology (3-0)
3412 Advanced Abnormal Psychology (3-0)
3417 Advanced Statistics (3-0)
3424 Psychobiology (3-0)
3440 Advanced Industrial/Organizational Psychology (3-0)
3441 Motivation and Emotion (3-0)
3454 Seminar in Psychology (3-0)

MA PROGRAMS

The department offers two programs leading to the MA degree: General Experimental Psychology and Clinical Psychology. The MA in General Experimental Psychology requires the completion of thirty credits, including twenty-four hours of course work and six hours of thesis. The MA in Clinical Psychology requires the completion of forty-five credits, including thirty-three hours of course work, six hours of internship, and six hours of thesis. It is the responsibility of the student to complete the required courses for each degree program. Information on required courses, which may change from year to year, may be obtained from the Graduate Program Director.

All MA students are required to pass both a written and an oral examination. The written comprehensive examination is given twice a year, in the Fall and Spring semesters. Students must complete the written examination prior to beginning the thesis. The oral examination is the final defense of the thesis before the thesis committee members.

PhD PROGRAM

The PhD is designed to train research psychologists to work in applied psychology. A special focus of this research is directed toward bilingual, bicultural issues as a result of the University's location on the U.S.-Mexico border. Candidates are required to take a core curriculum consisting largely of quantitative, experimental design, methods, and psychometrics courses. In addition, two proseminars in the core curriculum provide breadth in students' knowledge of sensation and perception, cognition, physiological, developmental, personality, and social psychology.

Students must select one of two areas of concentration: (1) Psychology and Health or (2) Human Behavior in Organizations. Field placement and dissertation topic must reflect concentration chosen.

Course Requirements

All PhD candidates, regardless of their area of concentration, are required to complete concentration core courses that are designed to provide students with specific knowledge and skills that will prepare them for field placements in applied settings. Students are required to complete seventy-two (72) semester hours: twenty-one (21) hours of core courses, nine (9) hours of concentration courses, nine (9) hours of research (with at least two faculty members), six (6) hours of field placement, six (6) hours of dissertation and twenty-one (21) hours of electives. A research dissertation (PSYC 3620 and 3621) is required of students. Students must register for PSYC 3620 for the first three hours of dissertation work and for PSYC 3621 thereafter until the dissertation is complete.

The **core courses** (21 semester hours) required for all PhD candidates are:

PSYC 1500 Current Topics
PSYC 3510 Statistics I - Applied Correlation and Regression
PSYC 3511 Statistics II - Experimental Design
PSYC 3531 Cross-Cultural Research Methods
PSYC 3534 Field Methods in Psychology
PSYC 4504 Proseminar I
PSYC 4505 Proseminar II

Note: A student may substitute another core course or an elective for PSYC 3417 if the student has already had an advanced ANOVA course.

The remaining credits (51) will be earned in concentration electives (9), research applications (9), field placement (6), dissertation (6), and general electives (21).

Concentration Electives (9 hours):

Psychology and Health
PSYC 3515 Psychopharmacology
PSYC 3522 Theories and Methods of Psychotherapy
PSYC 3541 Legal Issues and Psychological Assessment
PSYC 3547 Advanced Behavior Technology
PSYC 3550 Seminar in Health Psychology

Human Behavior in Organizations
PSYC 3502 Applied Sensation and Perception
PSYC 3514 Applied Cognitive Processes
PSYC 3538 Personnel Selection and Placement
PSYC 3542 Psychologist as Consultant: Legal Issues
PSYC 3551 Seminar in Human Performance

Language Requirement:

Students must demonstrate written and oral proficiency in two languages, English and Spanish. Alternative languages must be approved by the Graduate Program Committee. Course work taken to complete the language requirement cannot be counted toward the seventy-two (72) credit hours required for the PhD degree.

Transfer Students with Graduate Credit:

Students accepted into the PhD program with graduate credit from the University of Texas at El Paso (including the Psychology Department) or from another university must satisfy the same requirements as those beginning their PhD graduate training in Psychology at UTEP without previously earned graduate credits. The student may petition the Graduate Program Committee to accept a maximum of 24 hours of graduate credit (excluding thesis hours) completed at UTEP or another institution. Approved credits will appear as Advanced Standing Credit on the Preliminary Plan of Study. Students who have taken PSYC 3501 (Research Applications) from UTEP prior to admission to the PhD program may request that a maximum of three credit hours for this course be included in the 24 hours that may be counted toward their PhD degree as long as those hours were not used to meet requirements for a previous or separate degree.

The student must make a written request for Advanced Standing Credit to the Graduate Program Committee. It is the student's responsibility to provide all evidence and material necessary for the Graduate Program Committee to review the request. Advanced Standing Credits are subject to final approval from the Graduate School.

Maximum Time for Completion of the PhD Degree:

Students in the PhD program in Psychology must complete all requirements for a PhD within one eight-year period. The eight-year period begins with the term of the first course listed on the student's degree plan. Use of advanced standing will proportionately decrease this time period but in no case will be less than six years of study.

Written Examinations:

Preliminary Exam - A written preliminary examination will be given during the summer at the end of the student's first year of study. A student may retake the written preliminary examination one time. If not passed in two attempts, the student will be dismissed from the program. Students are not permitted to register for PSYC 3620 (dissertation) until they have passed the written preliminary exam.

Written Comprehensive Exam - PhD candidates must pass a written comprehensive examination that will be constructed and graded by the student's PhD committee. Students may retake the written comprehensive examination one time. If students do not pass the written comprehensive examination in two attempts, they will be dismissed from the program.

PhD Oral Examinations:

A dissertation proposal must be defended orally before the student's committee prior to collecting data. In addition, students must successfully defend their dissertation during a final oral examination conducted by the dissertation committee. The final oral examination may include committee examination on any appropriate material.

Field Placements:

Field placements are arranged and administered by the Coordinator of Field Placements and the Field Placement Committee. Students are required to complete six (6) credit hours of field placement (PSYC 3605). Twenty (20) clock hours per week for one long semester (Fall or Spring) or for a summer term (June 1 through August 31) is equal to three (3) credit hours of Field Placement. Thus, students may fulfill the field placement requirement by: (1) working forty (40) hours per week for one long semester or for the summer term or (2) by working twenty (20) hours per week for two long semesters or for one summer term and one long semester.

Microfilming of Dissertation:

The doctoral candidate who has successfully completed all requirements for the degree is required to pay the cost of microfilm reproduction of the complete dissertation. The signed original copy (unbound) of the doctoral dissertation is sent from the Office of the Graduate School to University Microfilms, Ann Arbor, Michigan, for reproduction.

The student must also submit to the Graduate School two copies of an abstract, not to exceed 350 words in length (double-spaced), that has been approved in final form by the supervising committee. This will be published in "Dissertation Abstracts International."

Publication by microfilm does not preclude subsequent publication of the dissertation, in whole or in part, as a monograph or in a journal. Copyright at the author's expense may be arranged, if desired, by completing a special form available in the Graduate Student Services Office. In order to protect patent or any other rights, the Graduate Student Services Office may be requested to delay publication by microfilm for a period of one year. This request must be supported by a written recommendation of the supervising professor.

For Graduate Students Only

Psychology (PSYC)

1500 Seminar on Current Topics (1-0)
Contemporary problems in various research areas will be discussed and recent applied research programs will be examined. Special methodological requirements for field evaluation and other non-experimental research approaches will be emphasized. All psychology doctoral students are required to take this course. *Prerequisite*: Departmental approval.

3501 Research Applications (0-0-3)
Supervised research in designated laboratories. Students may repeat course for credit. *Prerequisite*: Instructor's approval. Psychology Research Course fee required.

3502 Applied Sensation and Perception (3-0)
The basic principles of sensory and perceptual processes as they are involved in human performance in applied settings. Applications may include advertising, highway safety, symbolic representations in multicultural environments, audio-visual effectiveness, sensory evaluation in clinical settings, and computer graphic display systems.

3509 Seminar in Psychopathology (3-0)
An examination of the research related to problems in etiology, diagnosis, and prognosis of the major disorders.

3510 Statistics I: Application Correlation and Regression Methods (3-0)
Reviews correlation techniques, simple and multiple regression, and discusses their applications for psychological research in applied settings. *Prerequisite*: PSYC 3417 or equivalent.

3511 Statistics II: Experimental Design (3-0)
Consideration of problems of analysis and design commonly encountered in psychological research. *Prerequisite*: PSYC 3417, 3510, or equivalent.

3514 Advanced Cognitive Processes (3-0)
Analysis of current research in the field of applied cognition. Topics may include learning, memory, categorization, problem solving, and language, particularly in bilingual settings.

3515 Psychopharmacology (3-0)
A study of current topics and recent developments in the biochemical basis of psychopathology and related strategies of psychopharmacological intervention; efficacy evaluation; evaluation of toxicity and side effects.

3522 Theories and Methods of Psychotherapy (3-0)
An analysis of theory, technique, and research methods used in various current psychotherapies. *Prerequisite*: Instructor's approval.

3523 Psychometrics (3-0)
Principles of psychological evaluation, including intellectual, academic, neuropsychological, personality, attitude, and interest measures; reliability and validity; principles, methods, and statistical procedures employed in developing new psychometric instruments, especially with respect to different cultural/ethnic minorities.

3524 Seminar in Developmental Psychology (3-0)
An examination of issues pertaining to human development across the life span.

3525 Seminar in Social Psychology (3-0)
Study of current issues, theories, and methods in social psychology.

3527 Human Psychophysiology (3-0)
Recent research on basic psychological processes (e.g., learning, emotion, sleep, language) and physiological correlates (e.g., autonomic, electroencephalographic, and event-related responses).

3531 Cross-Cultural Research Methods (3-0)
In-depth analysis of the problems inherent in cross-cultural research. Particular emphasis is given to group vs. individual approaches, issues in translation, norming of instruments, and culturally sensitive interviewing techniques.

3533 Seminar in Intellectual and Neuropsychological Assessment (3-0)
Techniques of intellectual and neuropsychological assessment, including administration, interpretation, and written evaluations of major intellectual and neuropsychological instruments. *Prerequisites*: Departmental approval and PSYC 3401 or PSYC 3523. Course fee required.

3534 Field Methods in Psychology (3-0)
Design and implementation of field research, including observational methods, experiments and quasi-experimental designs, and program evaluation. Solutions to specific, commonly occurring design and statistical problems are emphasized.

3538 Personnel Selection and Placement (3-0)
Examines principles in the development of selection procedures for industry. Topics may include problems in matching human characteristics and job requirements, cross-cultural considerations, methods of determining reliability and validity, and legal considerations.

3541 Legal Issues and Psychological Assessment (3-0)
Topics include: Assessment of criminal responsibility; prediction of violence and recidivism; neurological impairment; child custody; selection of police and custodial personnel; cross-cultural issues.

3542 Psychologist as Consultant and Legal Issues (3-0)
Issues facing the psychologist in the role of consultant in applied settings. Topics may include consultation in alternatives to litigation, such as negotiation and bargaining; evaluation of constitutional protection (sexual harassment, discrimination law, etc.); participation in the judicial system and testimony based on scientific expertise.

3547 Advanced Behavior Technology (3-0)
Examines behavioral programming for a wide variety of problems and settings involving behavior changes for both normal and deviant individuals.

3550 Seminar in Health Psychology (3-0)
Advanced study of contemporary problems and issues in selected topics in psychology. May be repeated with different instructors. *Prerequisite*: Departmental approval.

3551 Seminar in Human Performance (3-0)
An examination of current issues in human performance.

3555 Seminar in General Psychology (3-0)
Advanced study of contemporary problems and issues in selected topics in psychology. May be repeated with different instructors. *Prerequisite*: Departmental approval.

3560 Clinical Internship (0-0-6)
Supervised experience with clinical techniques in an approved agency other than the department's clinic. Each 150 clock hours is equivalent to three credit hours. May be repeated until 9 hours are accumulated; however, no more than nine credit hours of PSYC 3560 or a combination of 3560 and 3570 will count towards the MA degree in Clinical Psychology. Grades in this course will not be utilized in computing grade point average. *Prerequisites*: Instructor's approval. Psychology majors only.

3570 Psychology Clinic (0-6)
Supervised experience in the department's clinic. Each 150 clock hours is equivalent to three credit hours. May be repeated until nine hours are accumulated; however, no more than nine credit hours of PSYC 3570 or a combination of 3560 and 3570 will count towards the MA degree in Clinical Psychology. Grades in this course will not be utilized in computing grade point average. *Prerequisites*: Instructor's approval. Psychology majors only.

3598 Thesis (0-0-3)
Initial work on the thesis. Psychology Research Course fee required.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisite*: PSYC 3598. Psychology Research Course fee required.

4504 Proseminar I: Sensation/Perception; Cognition; Physiological Psychology (4-0)
Survey of current theories, methods, and research involving sensory and perceptual mechanisms; human cognition and information processing; brain function related to behavior.

4505 Proseminar II: Developmental, Personality, Social, and Differential Psychology (4-0)
Survey of the basic principles, current theories, methodology, and research in developmental, personality, social, and differential psychology. Cross-cultural research and theories appropriate to each field will be emphasized.

6501 Research Application (0-0-6)
Supervised research in designated laboratories. Students may repeat course for credit. *Prerequisite*: Instructor's approval. Psychology Research Course fee required.

3605 Field Placement (0-0-3)
Professional experience in an applied setting. The location and extent of the activity involved must be approved by the graduate studies committee.

3620 Dissertation (0-0-3)
Initial work on the dissertation. Psychology Research Course fee required.

3621 Dissertation
Continuous enrollment required while work on dissertation continues. *Prerequisite*: PSYC 3620. Psychology Research Course fee required.

4605 Field Placement (0-0-4)
Professional experience in an applied setting. The location and extent of the activity involved must be approved by the graduate studies committee.

5605 Field Placement (0-0-5)
Professional experience in an applied setting. The location and extent of the activity involved must be approved by the graduate studies committee.

6605 Field Placement (0-0-6)
Professional experience in an applied setting. The location and extent of the activity involved must be approved by the graduate studies committee.

Sociology and Anthropology

109 Old Main
(915) 747-5740

CHAIRPERSON: Howard C. Daudistel

GRADUATE ADVISOR: Ellwyn R. Stoddard

PROFESSOR EMERITUS: Julius Rivera

GRADUATE FACULTY: Campbell, Carmichael, Daudistel, Howard, Peterson, Rodriguez, Sanders, Smithey, Stoddard

The Department offers a Master of Arts degree in Sociology.

Graduate Program

MA DEGREE PREREQUISITES: Twelve semester hours of advanced courses in Sociology, a bachelor's degree, graduate standing, and consent of the advisor. The units presented should include theory and methods. The advisor may recommend that six semester hours of advanced courses in Anthropology be substituted for six of the Sociology hours.

MA DEGREE REQUIREMENTS: There are two options leading to the MA degree in Sociology.

The following are the requirements of the 30-hour thesis MA degree program:

1) at least 21 of the 30 eligible hours will be in 3500 level courses (that is, only nine hours of 3300 and 3400 work will be allowed for graduate credit);
2) each candidate must take one course in research methods (3512, 3513, or 3520), Sociology 3525 (Seminar in Sociological Theory), plus eighteen semester hours from the list of courses below;
3) enroll for at least one semester each in Sociology 3598 and 3599 (Thesis) and successfully defend the thesis before a committee while enrolled in Sociology 3599;
4) the student will be encouraged, but not required, to take six hours' course work in some discipline other than Sociology as a minor; if the student elects to take a minor in another department or discipline, course work in Sociology will be reduced accordingly;
   and
5) student will submit a suitably bound thesis which must be approved by the student's committee and placed on file in the Department and in the Office of the Graduate School.

The following are the requirements of the 36-hour non-thesis MA degree program:

1) at least 27 of the 36 hours will be in 3500 level courses (that is, only nine hours of elgible 3300 and 3400 work will be allowed for graduate credit);
2) the student will be encouraged, but not required, to take six hours' course work in some discipline other than Sociology as a minor;
3) the student will submit a suitably bound graduate research paper, beyond regular semester papers, which must be approved by the student's committee and placed on file in the Department and in the Office of the Graduate School.

Students will be allowed only one grade lower than a "B" in course work taken for graduate credit, and must maintain a minimum 3.0 grade average.

For Undergraduate and Graduate Students

Sociology

3306 Cultural Diversity (3-0)
3311 Methods of Research (3-0)
3319 Indigenous Cultures of Latin America (3-0)
3327 Majority/Minority Relations in the United States (3-0)
3333 Juvenile Delinquency (3-0)
3341 Special Undergraduate Topics (3-0)
3342 Sociology of Deviance (3-0)
3348 Criminology (3-0)
3361 Contemporary Mexican Culture (3-0)
3362 Medical Sociology (3-0)
3370 Sociology of Sex Roles (3-0)
3381 Complex Organizations (3-0)
3401 General Sociological Theory (3-0)
3447 Population Analysis and Problems (3-0)
3490 Independent Study (0-0-3)

Anthropology

3470 Studies in Anthropology (3-0)

For Graduate Students Only

Sociology (SOCI)

3510 Seminar in Social Organization (3-0)
An examination of size and complexity, vertical and horizontal processes, organizational effectiveness, and command and communication systems within bureaucratic and non-bureaucratic structures.

3512 Seminar in Advanced Measurement and Inference (3-0)
Introduction to techniques of multivariate analysis commonly used in sociology including multiple regression, factor analysis, and discriminant function analysis.

3513 Research Uses in Social Data (3-0)
Data analysis techniques, statistical analysis and management of large data sets; the use of computer and Statistical Package for the Social Sciences. *Prerequisite*: SOCI 3212 or equivalent.

3515 Seminar in Sociology of Deviance (3-0)
Critical analysis of sociological theories, current research, and applied approaches relevant to deviance.

3520 Seminar in Methodology (3-0)
The field research process from initial project proposal to the final report including the integration of the planning, execution, and analysis phases.

3525 Seminar in Sociological Theory (3-0)
The role and utility of theory within the discipline, the processes of theorizing, reconceptualizing and theory testing, theorists, and theoretical trends.

3540 Seminar in Demography (3-0)
Causes and consequences of trends in fertility, mortality, and migration.

3541 Special Graduate Topics (3-0)
A course organized to investigate special topics and current issues of significance to sociologists. May be repeated for credit when content varies.

3548 Seminar in Criminology (3-0)
Social context of criminal law and criminal justice; theories of crime and treatment programs.

3555 U.S.- Mexico Borderlands in Change (3-0)
The study of social, economic, and technological change in the Borderlands. Transborder networks and nationalistic policies are compared; the border maquiladora industry is studied.

3561 Graduate Research and Intern Practicum (3-0)
A course designed to give students supervised experience in conducting sociological research as interns in community agencies. (May be repeated for a maximum of six credit hours.)

3562 Seminar in Health Services Delivery (3-0)
Health and medical occupations and the organization of care, cure, and prevention systems; social and cultural factors affecting sick roles and community health policies and practices.

3565 Seminar in Sociology of Education (3-0)
Application of sociological theory and research to American education; present educational problems and possible solutions.

3575 Seminar in Southwestern Cultures (3-0)
An anthropological, ethnohistorical, and sociological examination of salient Southwestern cultures: Mexican-Americans, Indian societies, Blacks, Orientals, etc.

3590 Individual Studies (0-0-3)
Prerequisite: Departmental approval.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues.
Prerequisite: SOCI 3598.

Th atre Arts

371 Fox Fine Arts
(915) 747-5146

CHAIRPERSON: Charles Fensch
GRADUATE FACULTY: Abunuwara, Baca, Eastman, Ramos, Wright

The Theatre Arts Department offers a Master of Arts with a major in Theatre Arts.

MA DEGREE PREREQUISITES: (1) Bachelor's degree from an accredited college or university; (2) acceptable scores on the Graduate Record Examination (GRE); and (3) twelve approved advanced semester hours (3300, 3400) of undergraduate credit in Theatre Arts.

MA DEGREE REQUIREMENTS

A. Each candidate for the MA degree will be required to make a satisfactory score on a comprehensive examination; at the discretion of the department chairperson, a portion of the examination may be a performance or a laboratory demonstration.
B. Majors in Theatre Arts must take a minimum of eighteen semester hours in Theatre Arts included in a total of thirty semester hours, of which at least twenty-one hours must be in courses numbered 3500-3599. Students in Theatre Arts must do either a research or a production thesis, for which they will receive six hours of credit (THEA 3598-99: Thesis) toward these minimum requirements.

For Undergraduate and Graduate Students

These are courses which may be taken for graduate credit with approval of the graduate advisor. They are to be used to strengthen areas in which the student may be deficient and to enrich the graduate offerings.

4313 Acting II
3325 Directing I
3332 Scene Design
3335 Chicano Theatre & Drama
3336 Theatre in Spanish
3340 A History of Costume Design
3351 History of the Theatre I
3352 History of the Theatre II
3353 History of the Theatre III
3355 *The Musical Theatre*
3356 Women in Drama
3418 Playwriting
3440 Selected Topics in Drama and Theatre

For Graduate Students Only

The following Graduate Research Projects courses (3500-3507) are directed by members of the graduate faculty in specific topics of drama and theatre according to the student's interest and need, including such areas as aesthetics, history, criticism, dramatic literature, design, management, and drama education. A course in this group may be taken a second time when the topic is significantly different.

Theatre Arts (THEA)

3500 Graduate Projects in Drama (3-0)
Individual research in Theatre Management.

***3501 Graduate Projects in Drama* (3-0)**
Individual research in Costume and/or Makeup Design.

3502 Graduate Projects in Drama (3-0)
Individual research in History and/or Dramatic Criticism.

3503 Graduate Projects in Drama (3-0)
Individual research in Scene Design and/or Shop Management.

3504 Graduate Projects in Drama (3-0)
Individual research in Lighting and/or Sound Design.

3505 Graduate Projects in Drama (3-0)
Individual research in Directing and Rehearsal Methods.

3506 Graduate Projects in Drama (3-0)
Individual research in the Teaching of Acting.

3507 Graduate Projects in Drama (3-0)
Individual research in Spanish Language Theatre and Drama.

***3518 Methods of Graduate Theatre and Drama Research* (3-0)**
Survey of the essential tools of graduate research and creation in theatre and drama—including bibliography, aesthetics, and creative and scholarly procedure—culminating in the preparation of a scholarly paper. Required of all majors.

***3522 Seminar in Theatre* Technology (3-0)**
Studies of production design and methods of staging in the unfolding pattern of western theatre. Required of all majors.

3523 Seminar in Theatre History (3-0)
The study of the dramatic forms of theatre in selected historical periods. Required of all majors.

3525 Advanced Playwriting (3-0)
Advanced playwriting seeks to familiarize students with the major American playwrights of the past quarter-century and their impact on the state of the art. In addition, students write a full-length play.

***3527 Seminar in Performance: Acting and Directing* (3-0)**
Study of the strategies of theatrical presentation: the modes, styles, and techniques of acting and directing in a cultural context. Required of all majors.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues.
Prerequisite: THEA 3598.

College of Nursing and Health Sciences

Nursing
Health Sciences

Dr. Patricia Castiglia, Dean
Dr. Gail Ackall, Associate Dean
Dr. Joseph Perozzi, Assistant Dean

1101 N. Campbell
Phone: (915) 747-7280
Fax: (915) 747-7207

The College of Nursing and Health Sciences

The College of Nursing and Health Sciences has masters programs in Nursing, Health and Physical Education, Kinesiology, and Speech-Language Pathology. Students enrolling in the Master of Science in Nursing degree program may elect options in adult health nursing, community health nursing, community health/family nurse practitioner, nursing administration, nurse-midwifery, parent-child nursing, psychiatric-mental health nursing, or women's health care nurse practitioner. These nursing degree programs are accredited by the National League for Nursing and qualify students for national certification in their specialty.

The Master of Science degree in Speech-Language Pathology will qualify students for Texas License and certification by the American Speech, Language, Hearing Association in Speech-Language Pathology. A Health Care concentration is available with the Masters of Business Administration (MBA) degree offered by the College of Business Administration.

Nursing

1101 N. Campbell, Room 405
(915) 747-8217

CHAIRPERSON: Helen M. Castillo

GRADUATE FACULTY: Amaya, Castiglia, Castillo, Lantican, Lara, Lubno, Reynolds, Schaller-Ayers

The Graduate Program in Nursing is designed to permit students to earn the degree of Master of Science in Nursing. The mission of the College is to prepare professionals to respond to the health needs of individuals, families, and groups in society. The curriculum of the graduate program is intended to prepare professional nurses for advanced leadership through enhanced clinical practice, research, and role expansion. The student selects an area of clinical concentration as a major and a nursing minor in nursing education or clinical supervision and administration. The enhancement of clinical practice occurs through the expansion and refinement of knowledge and the testing of theory. Role expansion occurs through advanced practice, education, and management functions as they relate to health care delivery and increasing professional responsibilities to society. In addition, through the functional roles, the nurse enhances the performance of others by contributing to the improvement of human functioning.

The degree of Master of Science in Nursing provides the graduate the opportunity to:

1. apply theoretical and conceptual frameworks from nursing and other disciplines to the practice of clinical nursing in advanced roles;
2. synthesize theoretical formulations from nursing and other disciplines making applications in the care of clients;
3. provide advanced nursing care based upon an in-depth client assessment in an area of clinical focus;
4. evaluate ethical, moral, and legal precepts in client care;
5. design client interventions that are based upon cultural backgrounds and needs;
6. apply research methods to investigate problems which influence advanced nursing care;
7. analyze public policy issues as they affect advanced nursing practice and health care delivery systems;
8. collaborate with other disciplines to provide care in a variety of settings;
9. integrate peer review and/or peer guidance in advanced practice;
10. participate in professional leadership at all levels;
11. gain the basis for doctoral study and lifelong learning.

PROCEDURES AND REQUIREMENTS FOR ADMISSION

Applications and official transcripts are sent to the Graduate School. Final recommendations regarding admission are made by the Chairperson of the Nursing Department upon the recommendation of the Graduate Nursing Admission Committee. Student profiles are evaluated on an individual basis. The admission criteria include:

1. Completed application form.
2. Evidence of satisfactory completion of an NLN accredited baccalaureate nursing program in the United States or equivalent education at a foreign institution. Official transcripts on which the degree is posted are required.
3. A grade point average of 3.0 (on a 4.0 scale) or better in upper division (junior and senior level) course work and all graduate work completed.
4. Verbal and quantitative scores of 500 each on the Graduate Record Examination (GRE) or 50% on the Miller's Analogy Test (MAT).
5. Current Texas licensure as a registered nurse. International students must be authorized to practice in their own country and pass the GSFSN. International students must also score 550 or higher on the TOEFL.
6. Evidence of current Provider CPR, liability insurance, and health clearance.
7. Satisfactory completion of an undergraduate statistics course with a "C" or better and evidence of basic health assessment skills.
8. Some majors may have additional requirements. Please contact the advisor of the Graduate Program in Nursing for further information.

Applications are considered on an individual basis and are reviewed by the Graduate Nursing Admission Committee.

DEGREE REQUIREMENTS FOR THE MASTER OF SCIENCE IN NURSING

The Graduate Program in Nursing offered by the College of Nursing and Health Sciences at The University of Texas at El Paso is fully accredited by the National League for Nursing. The Master of Science degree in Nursing prepares graduates for post-graduate roles in a variety of advanced practice specialty areas. The options available are adult health nursing, community health nursing, community health/family nurse practitioner, nursing administration, nurse-midwifery, parent-child nursing, psychiatric-mental health nursing, or women's health care nurse practitioner. Total hours required vary from 36 to 55 credit hours. Students should contact the program advisor for each of these specialties for further course information and program requirements.

The Department of Nursing attempts to accommodate flexibility in course offerings with respect to weekend, evening, and summer classes. However, this flexibility is offered only if faculty and other resources are available. Courses with enrollment of less than five individuals are subject to cancellation.

Graduate students must maintain a GPA of 3.0 (B average) in order to remain in good academic standing. All students who select the non-thesis option must complete and pass an oral comprehensive examination. Those students who elect the thesis option must complete an oral defense. All degree requirements for the MS in Nursing must be completed within six years.

All students may choose the thesis or non-thesis option. If the thesis option is chosen, the research proposal and pilot study completed in previous courses may be used as the basis for the thesis project. The satisfactory defense of the thesis is required. Students choosing the non-thesis option complete nine credit hours of graduate electives approved by the academic advisor in addition to an oral comprehensive examination required for the completion of this option.

STUDENT EMPLOYMENT

Student employment is a personal decision; however, it is up to the student to arrange the work schedule so as not to interfere with classes and clinical practicum requirements. Classes are offered in a variety of time periods throughout the year to assist the students in alleviating conflicts.

MASTER OF SCIENCE IN NURSING

1. REQUIRED CORE COURSES (18 hours)

*NURS 3503 Advanced Health Assessment
NURS 3510 Nursing Theories and Processes
NURS 3519 Advanced Pathophysiology
NURS 3562 Pharmacotherapeutics
NURS 3570 Research Methods I

And one of the following:

NURS 3500 Organizational Culture
NURS 3501 Issues and Problems in Health Care
NURS 3538 Health Law, Policy and Ethics
NURS 3550 International Health
NURS 3571 Research Methods II (for non-thesis)

2. ROLE COURSES (5 hours)

NURS 2554 Advanced Clinical Practice: Nurse Practitioner Role
NURS 3556 Nursing Preceptorship

3. THESIS OR NON-THESIS (9 hours)

Thesis

NURS 3571 Research Methods II
NURS 3598 Thesis
NURS 3599 Thesis

Non-Thesis

Nine credit hours of graduate level electives in nursing or related areas.

4. DIRECTED ELECTIVES (6 hours)

For Students Planning for Nursing Education Positions:
NURS 3545 Curriculum and Instruction in Nursing Education
*NURS 3547 Roles and Functions of the Nurse Educator

For Students Planning for Administrative Positions:
*NURS3541 Nursing Supervision in Health Care Agencies

And one of the following three courses:
MGMT 3594 Current Issues in Management
NURS 3535 Nursing Administration
*NURS 3536 Advanced Nursing Administration

5. OPTIONS/MAJORS

ADULT HEALTH NURSING (41 hours):

Required Core (18 hours)
Role Courses (5 hours)
Concentration Courses (9 hours)
* NURS 3520 Adult Health Nursing I
* NURS 3521 Adult Health Nursing II
* NURS 3532 Advanced Clinical Practice
Thesis or Non-Thesis (9 hours)

COMMUNITY HEALTH (37 hours):

Core Courses (9 hours)
* NURS 3503 Advanced Health Assessment
NURS 3562 Pharmacotherapeutics
NURS 3570 Research Methods I
Concentration Courses (19 hours)
* NURS 1503 Community Practicum I
* NURS 2504 Community Practicum II
* NURS 2505 Community Practicum III
NURS 4506 Community and Primary Care Nursing I
* NURS 5507 Community and Primary Care Nursing II
* NURS 5508 Community and Primary Care Nursing III
Thesis or Non-Thesis (9 hours)

COMMUNITY HEALTH/FAMILY NURSE PRACTITIONER (55 hours):

Required Core (18 hours)
Concentration Courses (28 hours)
* NURS 1506 Primary Care Nursing Practicum I
* NURS 2507 Primary Care Nursing Practicum II
* NURS 2508 Primary Care Nursing Practicum III
NURS 2554 Advanced Clinical Practice: Nurse Practitioner Role
NURS 4506 Community and Primary Care Nursing I
* NURS 5507 Community and Primary Care Nursing II
* NURS 5508 Community and Primary Care Nursing III
* NURS 7573 Advanced Practice Role
Thesis or Non-Thesis (9 hours)

NURSING ADMINISTRATION (36 hours):

Core Courses (9 hours)
NURS 3510 Nursing Theories and Processes
NURS 3570 Research Methods I

And one of the following:
CIS 3511 Management Information Systems Theory and Practice
MGMT 3511 Organizational Management Seminar
MKT 3503 Marketing Systems
NURS 3500 Organizational Culture
NURS 3571 Research Methods II (for thesis)

Concentration Courses (18 hours)
NURS 3535 Nursing Administration
* NURS 3536 Advanced Nursing Administration
NURS 3537 Health Care Financial Management
NURS 3538 Health Law, Policy and Ethics
* NURS 3539 Nursing Administration Policy Analysis
* NURS 3541 Nursing Supervision in Health Care Agencies
Thesis or Non-Thesis courses (9 hours)

NURSE-MIDWIFERY (50 hours):

Core Courses (9 hours)
NURS 3510 Nursing Theories and Processes
NURS 3562 Pharmacotherapeutics
NURS 3570 Research Methods I
Concentration Courses (32 hours)
NURS 2564 Professional Role Development I
NURS 2569 Professional Role Development II
NURS 3550 International Health
* NURS 5563 Family Planning and Well Women Gynecology
* NURS 5565 Management of the Antepartum Period of the Childbearing Cycle
* NURS 5566 Management of the Postpartum and Neonatal Periods of the Childbearing Cycle
* NURS 5567 Management of the Intrapartum Period of the Childbearing Cycle
* NURS 5568 Comprehensive Nurse-Midwifery Practice
Thesis or Non-Thesis (9 hours)

PARENT-CHILD NURSING (41 hours):

Required Core (18 hours)
Role Courses (5 hours)
Concentration Courses (9 hours)
* NURS 3511 Parent-Child Nursing I
* NURS 3515 Parent-Child Nursing II
* NURS 3532 Advanced Clinical Practice
Thesis or Non-Thesis (9 hours)

PSYCHIATRIC-MENTAL HEALTH (41 hours):

Required Core (18 hours)
Role Courses (5 hours)
Concentration Courses (9 hours)
* NURS 3525 Psychiatric-Mental Health Nursing I
* NURS 3527 Psychiatric-Mental Health Nursing II
* NURS 3532 Advanced Clinical Practice
Thesis or Non-Thesis (9 hours)

WOMEN'S HEALTH CARE NURSE PRACTITIONER (48 hours):

Core Courses (15 hours)
- * NURS 3503 Advanced Health Assessment
- NURS 3510 Nursing Theories and Processes
- NURS 3519 Advanced Pathophysiology
- NURS 3562 Pharmacotherapeutics
- NURS 3570 Research Methods I

Concentration Courses (24 hours)
- NURS 2554 Advanced Clinical Practice: Nurse Practitioner Role
- NURS 3551 Women's Health Care I
- * NURS 5552 Women's Health Care II
- * NURS 5553 Women's Health Care III
- * NURS 9556 Nursing Preceptorship

Thesis or Non-Thesis courses (9 hours)

*Includes a practicum

NURSING (NURS)

For Graduate Students Only

1503 Community Practicum I (0-0-3)
Practice/Laboratory component that is associated with NURS 4506. Includes practicum. *Co-requisite*: NURS 4506. *Prerequisite*: Departmental approval.

1506 Primary Care Nursing Practicum I (0-0-3)
Practice/Laboratory component for family nurse practitioner students. Includes practicum. *Co-requisite*: NURS 4506. *Prerequisite*: Departmental approval.

1597 Graduate Research (0-0-1)
Variable credit for approved research activity. Up to three semester hours may be applied toward degree requirements. *Prerequisite*: Departmental approval.

2504 Community Practicum II (0-0-6)
Practice/Laboratory component that is associated with NURS 5507. Includes practicum. *Co-requisite*: NURS 5507. *Prerequisites*: NURS 1503, NURS 4506, and departmental approval. Nursing Liability Insurance fee required.

2505 Community Practicum III (0-0-6)
Practice/Laboratory component that is associated with NURS 5508. Includes practicum. *Co-requisite*: NURS 5508. *Prerequisites*: NURS 5507 and departmental approval.

2507 Primary Care Nursing Practicum II (0-0-6)
Practice/Laboratory component that is associated with NURS 5507. Includes practicum. *Co-requisite*: NURS 5507. *Prerequisites*: NURS 1506, NURS 4506, and departmental approval. Nursing Liability Insurance fee required.

2508 Primary Care Nursing Practicum III (0-0-6)
Practicum/Laboratory component that is associated with NURS 5508. Includes practicum. *Co-requisite*: NURS 5508. *Prerequisites*: NURS 5507 and departmental approval.

2554 Advanced Clinical Practice: Nurse Practitioner Role (2-0)
Focuses on analysis of nurse practitioner role and its impact on the delivery of care with emphasis on role socialization. The legal foundations for advanced nursing practice and professional ethics are examined. *Prerequisite*: NURS 5553 with a grade of "B" or better, and departmental approval.

2564 Role Development I (2-0)
During this course the student will study and analyze the historical development of the profession of nurse-midwifery in the United States and internationally. The concept of advanced nursing practice and role change will be explored. For Nurse-Midwifery majors only.

2569 Professional Role Development II (2-0)
During this course the student will study, analyze, and apply the role and professional responsibilities of nurse-midwifery. Course content will include nurse-midwifery, practice, political and professional issues. For Nurse-Midwifery majors only. *Prerequisites*: NURS 5567 and NURS 5568.

2597 Graduate Research (0-0-2)
Variable credit for approved research activity. Up to three semester hours may be applied toward degree requirements. *Prerequisite*: Departmental approval.

3500 Organizational Culture (3-0)
The values, beliefs, and structures in an organization are analyzed in relation to their influence on corporate decision making and administrative practices. Topics discussed include management rituals, symbolism, leadership, setting standards, interpersonal behaviors, and effective presentations within various organizational subcultures. Open to other graduate students.

3501 Issues and Problems in Health Care (3-0)
Assessment of issues and problems in meeting health needs of society and their relevance to nursing and health care.

3503 Advanced Health Assessment (3-0)
Didactic and clinical experiences that provide students with the knowledge and skills for performing a comprehensive assessment. Obtained data will be used to make a diagnosis of health status leading to the formulation of a clinical management plan. Includes practicum. *Prerequisite*: Departmental approval. Equipment Maintenance fee required.

3505 Community Health/Community Mental Health Nursing (3-0)
Analyzes social issues influencing community health and community mental health nursing. Focuses on continuity of care with emphasis on physiological and psychosocial problems of patients/clients and families. Complex community systems and strategies of health promotion and illness prevention are emphasized.

3506 Community and Primary Care Nursing I (2-2)
Presents the dynamics and nature of the Southwest Texas Health Service area and the way in which people who live in the border areas perceive themselves in terms of their health-care needs and available resources. Includes practicum.

3510 Nursing Theories and Processes (3-0)
Focuses on critical analysis of current nursing theories and related nursing process conceptualization with application to selected clients/patients and families.

3511 Parent-Child Nursing I (3-0)
Focus on advanced nursing care of well pregnant women and well children, and children and pregnant women with selected health problems with emphasis on primary prevention and health promotion. Includes practicum. *Prerequisites*: Core courses and Advanced Practice Core.

3513 Neonatal Intensive Care Nursing (3-0)
Analysis and evaluation of nursing measures to maintain or modify adaptive behaviors of neonates and families at risk. Focus is on health maintenance, restorative, and rehabilitative strategies.

3515 Parent-Child Nursing II (3-0)
Focus on advanced nursing care of children and pregnant women with acute, major, and/or chronic health problems. Includes practicum. *Prerequisite*: NURS 3511.

3517 School Health (3-0)
Focuses on the health care provider's role in the school health program. Current issues and trends in school health, administrative patterns, and health care policies are analyzed.

3519 Advanced Pathophysiology (3-0)
Provides opportunities to acquire expanded knowledge of the normal physiological systems of humans. Relationships between inter- and intracellular metabolism are considered. *Prerequisite*: Departmental approval.

3520 Adult Health Nursing I (3-0)
Focuses on application of nursing theories/frameworks with selected clients/patients along the age continuum manifesting deviations from health and requiring admission to the health care system. Consideration is given to the psychological and sociocultural concepts basic to nursing care. Includes practicum. *Prerequisites*: NURS 3519 and core courses.

3521 Adult Health Nursing II (3-0)
Focuses on providing continuity of nursing care for selected clients/patients/families who manifest deviations from health. Includes practicum. *Prerequisite*: NURS 3520.

3523 Gerontological Health (3-0)
Focuses on the aging process and the health care provider's role in assisting older persons to achieve successful aging. Health promotion and disease prevention strategies are evaluated. Economic, ethical, and political issues are analyzed in terms of quality of life for older persons.

3525 Psychiatric-Mental Health Nursing I (3-0)
Systematic study of the theoretical foundations of psychotherapeutic nursing practice. Clinical practicum focuses on individual therapy with patients/clients. Includes practicum. *Prerequisite*: Core courses.

3527 *Psychiatric-Mental Health Nursing II (3-0)*
Social systems approach to the study of mental health and mental illness. Emphasis is on the group approach to treatment. Includes practicum. *Prerequisite*: NURS 3525.

3531 Psychiatric-Mental Health Nursing III (3-0)
Focuses on therapeutic interventions with dysfunctional families. Emphasizes cultural aspects of family models and techniques of family therapy. Includes practicum. *Prerequisite*: NURS 3527.

3532 Advanced Clinical Practice (2-2)
This three (3) hour course provides lecture and application of content in various clinical areas. Concepts of advanced practice and models of care are discussed as they relate to specific clinical majors and subspecialties. Nursing Liability Insurance fee required.

3535 Nursing Administration (3-0)
Focuses on theories and principles of administration and management; application to nursing service supervision and administration. *Prerequisite*: Core courses.

3536 Advanced Nursing Administration (2-0-3)
Apply management models to the systematic assessment and evaluation of administrative elements in a health care organization. Students use and evaluate selected computer applications and information systems in a management role as a means to improve management effectiveness in health care settings. A management practicum is required. *Prerequisites*: NURS 3535 and NURS 3541.

3537 Health Care Financial Management (3-0)
An introduction to basic financial and accounting concepts relating to health care management. Programming, budgeting, and controlling processes in health care organizations will be discussed within the nurse manager's role.

3538 Health Law, Policy and Ethics (3-0)
Focus on the concepts of law that affect nursing and health care delivery in various settings to lead practice, to prevent liability, and to assist in public policy development related to organized nursing services. Organizational challenges and constraints are evaluated in relation to state and federal level policies. Ethical considerations, legal decisions, and public policy are highlighted as they affect nursing practice and the administrative role. Required for Nurse Administration Majors.

3539 Nursing Administration Policy Analysis (1-2)
Focuses on the analysis and evaluation of management policies, issues, and problems relevant to the regulation of health care delivery systems. A research or evaluation project in management is required and is designed to offer relevant learning activities in nursing administration. An administrative practicum is required in a hospital or community health care agency. The last required course for Nurse Administration Majors only.

3541 *Supervision and Administration of Health Care (3-0-3)*
Analyzes the development of nursing administration/supervision within health care settings. Focuses on supervision, organization, and administration of nursing services for client care. Includes practicum. *Prerequisite*: NURS 3535.

3545 Curriculum and Instruction in Nursing Education (3-0)
Principles, issues, and problems of curriculum design in nursing education in a variety of learning settings.

3547 Roles and Functions of the Nurse Educator (3-0)
Focus is on content delineation, planning, organizing, delivering, evaluating, and the teaching-learning process in nursing. Includes practicum. *Prerequisite*: NURS 3545.

3550 International Health (3-0)
Focuses on major international health programs as they relate to cultural, ecological, and economic factors. The roles of the local, state, national, and international agencies in relation to health are studied.

3551 Women's Health Care (3-0)
Focuses on preventive health care and health education for women across the life span. Problems in women's health care related to ethnicity and poverty are examined. Clinical emphasis is on the collaborative management of well women and women with minor health deviations. *Suggested Prerequisites or Co-requisites*: NURS 3510, NURS 3519, NURS 3503, and NURS 3562.

3556 Nursing Preceptorship (0-0-14)
This is a synthesizing course which allows students to apply previous nursing knowledge in various clinical practice sites. Preceptor or faculty supervision is provided. *Prerequisite or co-requisite*: NURS 2554. Nursing Liability Insurance fee required.

3562 *Pharmacotherapeutics (3-0)*
During this course the student will study and analyze pharmacologic fundamentals relating to selection, screening, and use of prescriptive and non-prescriptive drugs throughout the life cycle. *Prerequisite*: Departmental approval.

3570 Research Methods I (3-0)
Focus on study design and methodology, sampling frameworks, data analysis techniques, and research findings. *Prerequisite*: Departmental approval.

3571 *Research Methods II (3-0)*
In-depth study of the conceptual, empirical, and interpretive phases of scientific inquiry. Special emphasis on research design, methodological problems and data analysis and interpretation with consideration of the ethical and legal factors affecting nursing research. Required of all students selecting thesis option. *Prerequisite*: NURS 3570.

3573 Advanced Practice Clinical (0-9)
Integrates didactic and clinical content into intensive clinical practicum for family nurse practitioner students. Includes practicum. *Prerequisite*: NURS 5508.

3580 Special Topics in Nursing (3-0)
May be repeated as topic varies.

3594 Independent Study (0-0-3)
A course designed by the student to meet an individual learning need. *Prerequisites*: Instructor's approval and consent of Graduate Advisor or departmental approval.

3597 Graduate Research (0-0-3)
Variable credit for approved research activity. Up to three semester hours may be applied toward degree requirements. *Prerequisite*: Departmental approval.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisite*: NURS 3598.

4506 Community and Primary Care Nursing I (4-0)
Discuss the dynamics and nature of the Southwest Texas health service area and the way in which people who live in the border areas perceive themselves in terms of their health-care needs and available resources. *Prerequisite*: Departmental approval.

5507 Community and Primary Care Nursing II (3-0-6)
Explores community health policy issues, research potential and community health planning, program development and evaluation. Includes practicum. *Prerequisite*: NURS 4506 and departmental approval. Nursing Liability Insurance fee required.

5508 Community and Primary Care Nursing III (3-0-6)
Explores community health policy, issues, research potential and community health planning, program development and evaluation. Includes practicum. *Prerequisite*: NURS 5507.

5552 Women's Health Care II (3-0-6)
Focuses on preventive health care and health education for women across the life span. Problems in women's health care related to ethnicity and poverty are examined. Clinical emphasis is on the collaborative management of well women and women with minor health deviations. Includes practicum. *Prerequisite*: NURS 3551 with grade "B" or better, and departmental approval.

5553 Women's Health Care III (3-0-6)
Course provides the student with the opportunity to develop a framework for advanced nursing practice through the integration of theories and concepts, policy analysis and evaluation of management protocols. Emphasis is on the collaborative role in a variety of settings. Includes practicum. *Prerequisite*: NURS 5552 with grade of "B" or better.

5563 Family Planning/Gynecology (5-0)
During this course the student will study, analyze, and apply the concepts of the nurse-midwifery management process to the female exclusive of pregnancy. Using seminars, students in this course attain assessment and management skills in the following areas: gynecologic assessment, health maintenance, fertility control, and sexuality. The role of the nurse-midwife in co-management of complications is included. For Nurse-Midwifery majors only. Includes practicum.

5565 Management of the Antepartum Period of the Childbearing Cycle (5-0)
During this course the student will study, analyze, and apply the concepts of the nurse-midwifery management process of the antepartum period of the maternity cycle. Using seminars and childbirth in assuming responsibility for planning and providing nurse-midwifery care to pregnant clients. The role of the nurse-midwife in co-management or complicated pregnancy is included. Includes practicum. *Prerequisites*: NURS 3562, NURS 5563, and NURS 2564.

5566 Management of the Postpartum and Neonatal Periods of the Childbearing Cycle (5-0)
During this course the student will study, analyze, and apply the concepts of the nurse-midwifery management process to the postpartum and newborn periods of the maternity cycle. Using seminars and a neonatal module, students in this course attain assessment and management skills in assuming responsibility for planning and providing nurse-midwifery care to postpartum mothers and babies. The role of the nurse-midwife in co- management of complications of the postpartum and neonatal periods. Includes practicum. *Prerequisites*: NURS 5563 and NURS 5565.

5567 Management of the Intrapartum Period of the Childbearing Cycle (5-0)
During this course the student will study, analyze, and apply the concepts of the nurse-midwifery co-management process specific to the intrapartum and early postpartum-newborn periods of the maternity cycle. Using seminars students in this course attain assessment and management skills in assuming responsibility for planning and providing nurse-midwifery care to normal intrapartum patients. The role of the nurse-midwife in co-management of complications of the intrapartum. Includes practicum. *Prerequisites*: NURS 5563 and NURS 5565.

5568 Comprehensive Nurse-Midwifery Practice (3-0-24)
During this course the student will apply nurse-midwifery practice to a selected population assuming responsibility for an increasingly independent level. Course content will include integration of all components of nurse-midwifery practice. Knowledge and skills from previous courses are applied. Includes practicum. *Prerequisites*: NURS 5565 and NURS 5566. Nursing Liability Insurance fee required.

7573 Advanced Practice Role (0-0-40)
Integrates didactic and clinical components into intensive clinical practicum for Family Nurse Practitioner students. Includes practicum. *Prerequisites*: NURS 5508. Nursing Liability Insurance fee required.

9556 Nursing Preceptorship (0-0-40)
This is a synthesizing course which allows students to apply previous nursing knowledge in various clinical practice sites. Preceptor or faculty supervision is provided. Includes practicum.

HEALTH SCIENCES

1101 N. Campbell, Room 701
(915) 747-7245

CHAIRPERSON: Julie Patten

PROFESSORS EMERITI: Donald Hardin, William Harris, James G. Mason

ASSOCIATE PROFESSOR EMERITUS: Ben W. Collins

GRADUATE FACULTY: Ackall, Eyer, Heath, Kelly, Maud, Middleton, Mroz, O'Quinn, Patten, Perozzi, Reyes, Reynolds, Smith

The department offers degrees in Health and Physical Education, Kinesiology, and Speech-Language Pathology.

HEALTH

Program Coordinator: Brenda Smith

Prospective graduate students in Health may select either the MS in Health and Physical Education or the MED (Instructional Specialist major) with a concentration in Health.

The MS in Health and Physical Education is primarily directed toward students who wish to go beyond the Master's degree or to work as a professional in related fields in the private sector. The MED with an emphasis in Health is designed for the person teaching in the schools.

Students who wish to specialize in health education/health promotion at the graduate level may select one of the following programs:

1. MASTER OF SCIENCE IN HEALTH AND PHYSICAL EDUCATION

   Admission Requirements:
   - An undergraduate degree
   - At least 12 semester hours of 0300 and/or 0400 level courses in Health Sciences
   - A satisfactory score on the Graduate Record Examination

   Program:
   Thirty semester hours, including at least 21 semester hours at the 0500 level, HSCI 3555, EDRS 3505-3506, and six semester hours of thesis. A thesis, satisfactory to the Graduate Faculty, must be completed and orally defended before the degree will be awarded.

2. MASTER OF ARTS IN EDUCATION (with a Health Education emphasis)

   See the appropriate section under the College of Education in the Graduate Catalog.

3. MASTER OF EDUCATION - INSTRUCTIONAL SPECIALIST OPTION (with a Health Education emphasis)

   See the appropriate section under the College of Education in the Graduate Catalog.

Students seeking the MS in Health and Physical Education should be advised by the Graduate Advisor for Health Sciences in the College of Nursing and Health Sciences. Students seeking the Master of Arts in Education or the Master of Education - Instructional

Specialist degree should be advised by the Graduate Advisors in both the College of Education and the College of Nursing and Health Sciences.

Health Sciences (HSCI)

3550 Curriculum Development for Health Promotion (3-0)
Various Curriculum models and the mechanics of construction and implementation; principles, issues, and problems of curriculum design in health promotion programs.

3551 Promotion/Education of Human Sexuality and Family Life (3-0)
Factors relating to the significance of sexuality as a function of being human; the philosophy, content, methods, resources, and evaluation related to the provision of sexuality and family life programs.

3552 Evaluation in Health Promotion/Education (3-0)
Issues, problems, and techniques involved in evaluation of health promotion and health education programs.

3553 Health Promotion Issues and Delivery Strategies (3-0)
Health promotion methodology in public schools, the work site, community health, health care facilities and the private sector; behavioral theories, educational strategies, and learning theories.

3554 School Health Program Promotion (3-0)
School health program with emphasis on instruction, services, healthful living, administrative and legal aspects, professional preparation, major issues, wellness programs (including school-based clinics), and controversial instructional content.

3555 Foundations of Health Promotion/Education (3-0)
Study of historical and philosophical perspectives of health promotion and health education, analysis of literature which has influenced the development of health promotion and education programs and the concept of health, and investigation of ethical issues in health promotion.

3556 Planning and Administering Health Promotion Programs (3-0)
Study of methods and models of planning health promotion and health education programs for various settings, including theories and principles of administration and management of health promotion programs, with focus on coordination of services and supervision of staff.

3557 Selected Topics in Health Promotion (3-0)
Content of course may change. Possible topics include current issues and problems in health promotion, community health, health and safety. May be repeated, maximum of nine hours.

3558 Independent Study in Health Promotion (0-0-3)
Investigation and analyses of health/wellness and health promotion concerns. Field assignments may be required. May be repeated, maximum nine hours.

3597 Graduate Projects (0-0-3)
Individual research or development of a project/proposal under the direct supervision of a graduate faculty member. Requires satisfactory completion of the course, including a written report and oral presentation. *Prerequisite*: Departmental approval.

3598 Thesis (0-0-3)
Initial work on the thesis. *Prerequisite*: Departmental approval.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisite*: HSCI 3598 and departmental approval.

6562 Internship in Health Promotion (0-0-6)
Internship in community health agency or work site setting under supervision of preceptor and university graduate health science faculty. Requires a significant project or proposal approved by the instructor and a narrative component which will follow a written format. *Prerequisite*: Instructor's approval.

KINESIOLOGY

Program Coordinator: Garland O'Quinn, Jr.

The Master of Science degree with a major in Kinesiology is directed toward students who wish (a) to increase their knowledge and competency as a professional physical educator; (b) to complete a master's degree in preparation for continuing their education in a doctoral program at another institution; (c) to concentrate in the various sport science areas; (d) to prepare for any profession that deals with human movement and physical activity.

Admission Requirements:

For unconditional acceptance into the MS in Kinesiology program, students must present:

1. An undergraduate degree in Physical Education, Kinesiology, or related discipline with an overall GPA of 3.0 or higher on a 4.0 scale.
2. Satisfactory GRE scores of 500 on the verbal and 500 on the quantitative. The analytical score may also be reviewed towards admission.
3. TOEFL score of 550 or higher for those students for whom English is a foreign language.

For conditional admission into the MS in Kinesiology program, students must present:

1. A degree from another discipline, if the student has completed a minimum of 12 hours of undergraduate Kinesiology core courses and has an overall GPA of 2.8 or higher on a 4.0 scale.
2. Satisfactory GRE scores of 500 on the verbal and 500 on the quantitative. The analytical score may also be reviewed towards admission.
3. TOEFL score of 550 or higher for those students for whom English is a foreign language.

MS in Kinesiology Degree Requirements

A total of 30 hours distributed as follows:

Required Courses:
12 hours - graduate level Kinesiology courses

Thesis Option:
6 hours - graduate level statistics
6 hours - directed electives
6 hours - thesis

Non-Thesis Option:
3 hours - graduate level statistics
12 hours - directed electives
3 hours - graduate project

Kinesiology (KIN)

1578 Directed Individual Studies (0-0-1)
Individual investigation of specific topics of interest. May be repeated for credit. *Prerequisite*: Instructor's approval and program coordinator's approval.

1579 Graduate Research (0-0-1)
Department approved research in special areas of student or faculty interest. *Prerequisite*: Instructor's approval and program coordinator's approval.

2578 Directed Individual Studies (0-0-2)
Individual investigation of specific topics of interest. May be repeated for credit. *Prerequisite*: Instructor's approval and program coordinator's approval.

2579 Graduate Research (0-0-2)
Department approved research in special areas of student or faculty interest. *Prerequisite*: Instructor's approval and program coordinator's approval.

3561 Biomechanical Basis of Sport (3-0)
Advanced level kinesiological, mechanical, and physiological aspects as a basis for physical education. *Prerequisite*: Instructor's approval. Course fee required.

3562 Administration and Supervision of Physical Education Programs (3-0)
The application of administration and supervisory techniques in physical activity programs.

3563 Sociological Foundations of Physical Activity and Sports (3-0)
Socio-psychological processes, principles, and factors affecting the behavior of humans in physical activity and sport. Investigation of current socio-psychological problems with implications for physical education and athletic coaching.

3564 Advanced Topics in Health and Physical Education (3-0)
Individual problems in the field of health and physical education. May be repeated for credit.

3565 Programs of Physical Activity (3-0)
Factors affecting the selection of physical activity participation in various settings and cultural environments.

3569 Physical Activities for Young Children (3-0)
A study of the various physical activities pursued by young children ages four to eleven along with the contribution made by each to physical development.

3570 Practicum in Exercise Science (0-0-6)
Assignment to professionals in the field of exercise or therapy in the community for a minimum of 100 clock hours. A daily log of experience will be required.

3571 Measurement Techniques in Exercise Physiology (3-0)
Techniques and equipment used in assessing strength, cardiorespiratory efficiency, and other components of physical fitness. *Prerequisite*: Instructor's approval. Course fee required.

3572 Advanced Exercise Physiology (3-0)
Advanced study of the physiological adaptations that occur in response to acute and chronic exercise. Examination of these changes as they affect training, performance, and health. *Prerequisite*: Instructor's approval. Course fee required.

3573 Psychological Foundations of Physical Activity and Sports (3-0)
This course centers upon the mental processes involved during motor skill acquisition and performance. Major topics include the psychological aspects of sport performance in novice and elite athletes, from the performer's viewpoint, as well as how teachers and coaches use the principles of motor learning concepts to accelerate the progress of their students/athletes.

3574 Measurement Techniques in Biomechanical Analysis (3-0)
An in-depth study of the methods used in the Biomechanics Laboratory. Topics include techniques related to cinematography, video analysis, force transducers, data filtering, and collection of human body characteristics. *Prerequisite*: Instructor's approval. Course fee required.

3576 Neuroscience Applied to Exercise and Sport (3-0)
An advanced course designed to study the normal neurological structure and function as applied to movement science and recognize the functional consequences of selected neurological lesions. *Prerequisite*: Instructor's approval.

3577 Graduate Seminar in Current Issues (3-0)
Discussion and presentation of pertinent and current issues in the areas of physical education, exercise science, and sport. May not be taken more than one time.

3578 Directed Individual Studies (0-0-3)
Individual investigation of specific topics of interest. May be repeated for credit. *Prerequisite*: Instructor's approval and program coordinator's approval.

3579 Graduate Research (0-0-3)
Department approved research in special areas of student or faculty interest. *Prerequisite*: Instructor's approval and program coordinator's approval.

3597 Graduate Projects (0-0-3)
Individual research or development of a project/proposal under the direct supervision of a graduate faculty member. Requires satisfactory completion of the course, including a written report and oral presentation. *Prerequisite*: Permission of advisor.

3598 Thesis (0-0-3)
Initial work on the thesis. *Prerequisite*: Instructor's approval.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisite*: KIN 3598.

SPEECH-LANGUAGE PATHOLOGY

Program Coordinator: Joseph Perozzi

The Master of Science degree in Speech-Language Pathology is accredited by the Educational Standards Board of the American Speech, Language, Hearing Association. Students who successfully complete the master's fulfill academic course work and clinical practicum requirements for the Certificate of Clinical Competence and the Texas License in Speech-Language Pathology.

Admission Requirements:

1. Minimum of 21 semester hours of upper-division undergraduate courses related to communication disorders.
2. GPA of 3.0 in upper-division preparatory SPLP undergraduate courses.
3. GRE score of 500 Verbal and 500 Analytical.
4. A GPA higher than 3.0 may offset GRE scores lower than the specified minimums and GRE scores higher than the specified minimums may offset a GPA lower than 3.0 for unconditional acceptance into Graduate School. Conditional acceptance into Graduate School is also possible.

MS Degree Requirements:

Majors in Speech-Language Pathology must complete:

1. A minimum of 54 semester hours, of which 45 are in required courses (see below) and nine are electives selected with the approval of the graduate advisor.
2. A minimum of 350 clock hours of supervised clinical practicum is required. In addition, 25 clock hours of supervised clinical observation must be completed prior to beginning the initial practicum experience.
3. Comprehensive written and oral examinations are required for students who choose not to write a thesis. Students who write a thesis are required to defend the thesis in an oral examination. Students who choose to write a thesis must enroll in SPLP 3598 and 3599. Those six hours count as electives toward the minimum of 54 hours.

Required Courses (45 hours)

SPLP 3500	Aural Rehabilitation
SPLP 3520	Research Design in Communication Disorders
SPLP 3530	Differential Diagnosis of Communication Disorders
SPLP 3558	Cleft Palate
SPLP 3559	Fluency Disorders
SPLP 3560	Aphasia and Related Disorders
SPLP 3562	Disorders of Language
SPLP 3563	Disorders of Voice
SPLP 3564	Motor Speech Disorders
SPLP 3565	Advanced Audiology
SPLP 3569	Graduate Practicum in Speech-Language Pathology, University Clinic
SPLP 6579	Graduate Practicum in Speech-Language Pathology, School Setting
SPLP 6589	Graduate Practicum in Speech-Language Pathology, Hospital/Agency

Nine semester hours of electives. SPLP courses which may count as electives are listed below:

SPLP 3510 Gerontology and Communication Disorders
SPLP 3567 Conservation of Hearing
SPLP 3572 Problems and Projects in Speech Pathology
SPLP 3573 Advanced Clinical Practicum in Audiology
SPLP 3574 Problems and Projects in Audiology
SPLP 3598 Thesis
SPLP 3599 Thesis

Out-of-department graduate electives must be approved by the graduate advisor.

Recommended Sequence

First Year		
Summer:	SPLP 3530, 3559	6 semester hours
Fall:	SPLP 3520, 3563, 3564, 3569	12 semester hours
Spring:	SPLP 3500, 3560, 3562, Elective	12 semester hours
Second Year		
Summer:	SPLP 6589, Elective	9 semester hours
Fall:	SPLP 3565, 6579	9 semester hours
Spring:	SPLP 3558, Elective	6 semester hours
		54 TOTAL

Speech-Language Pathology (SPLP)

For Undergraduate and Graduate Students

SPLP 3412 Neural Bases of Speech and Language (3-0)

For Graduate Students Only

3500 Aural Rehabilitation (3-0)
Clinical aspects of habilitation and/or rehabilitation programs for deaf and hard-of-hearing children and adults. *Prerequisite:* An introductory course in audiology or audiometry.

3510 Gerontology and Communication Disorders (3-0)
A description of the sociological, psychological, medical, and educational aspects of adult development and aging as they relate to communication processes and disorders.

3520 Research Design in Communication Disorders (3-0)
Typical and single-subject designs utilized in the research of speech, hearing, and language disorders.

3530 Differential Diagnosis of Communication Disorders (3-0)
Procedures for diagnostic testing and applications for use of assessment information in identifying communication disorders.

3558 Cleft Palate (3-0)
Diagnosis and management of articulation and resonance disorders related to cleft palate and other craniofacial abnormalities.

3559 Fluency Disorders (3-0)
Etiology, diagnosis, and treatment of childhood and adult stuttering and other disfluencies.

3560 Aphasia and Related Disorders (3-0)
Study of the etiology, symptomatology, diagnosis, and treatment of aphasia and its relationships to adult neurogenic disorders including traumatic brain injury, right hemisphere syndrome, and dementia. Bilingual aspects of aphasia are discussed.

3562 Disorders of Language (3-0)
Standardization, reliability, and validity of language tests. Advanced techniques in diagnosis and remediation of language disorders of children. Issues related to diagnosis and remediation of limited English proficient children are discussed.

3563 Disorders of Voice (3-0)
Diagnosis and management of organic and hyperfunctional voice disorders in children and adults.

3564 Motor Speech Disorders (3-0)
Study of the dysarthrias, apraxia of speech, and dysphagia. *Prerequisite:* SPLP 3412.

3565 Advanced Audiology (3-0)
Assessment of auditory function by utilizing conventional and special hearing tests and measurements.

3567 Conservation of Hearing (3-0)
Development of pre-school, public school, and industrial hearing conservation programs.

3569 Graduate Practicum in Speech-Language Pathology, University Clinic (3-0)
Supervised clinical practicum in providing services for the speech and language impaired at the University Clinic. *Prerequisites:* 21 semester hours of upper-division undergraduate course work in communication disorders and proficient use of Standard American oral English. May be repeated one time for elective credit. Liability insurance required. Course fee required.

3572 Problems and Projects in Speech Pathology (3-0)
Special projects under faculty supervision. May be taken more than once with a change in area of emphasis.

3573 Advanced Clinical Practicum in Audiology (3-0)
Supervised clinical practicum in providing audiological services. Liability insurance required. Course fee required.

3574 Problems and Projects in Audiology (3-0)
Special projects under faculty supervision. May be taken more than once with a change in area of emphasis.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on the thesis continues. *Prerequisite:* SPLP 3598.

6579 Graduate Practicum in Speech-Language Pathology, School Setting (0-0-6)
Supervised clinical practicum in providing services to the speech and language impaired in school settings. Offered Fall and Spring semesters only. *Prerequisite:* 50 clock hours of supervised practicum. Liability insurance required.

6589 Graduate Practicum in Speech-Language Pathology, Hospital/Agency (0-0-6)
Supervised clinical practicum in providing services to the speech and language impaired in hospitals and/or agencies. *Prerequisite:* 50 clock hours of supervised practicum. Liability insurance required.

COOPERATIVE MASTERS IN PHYSICAL THERAPY: The University of Texas Medical Branch at Galveston in cooperation with The University of Texas at El Paso offers a Master's degree in Physical Therapy. Physical Therapy is a health profession whose primary purpose is the promotion of optimal physical function. Therapists apply scientific principles to prevent and treat acute and chronic movement disorders. Physical Therapy encompasses areas of specialization and includes the development of new approaches to more effectively meet existing and emerging health care needs. The professional program in physical therapy, which follows 90 hours of prerequisite study and selection to the program (application, interview, etc.), requires approximately three years. The first year starts in late May, and extends into the following April. During this year, students complete courses in basic and clinical sciences, and in basic physical therapy evaluation and treatment procedures. Students are introduced to legal, ethical, and professional aspects of physical therapy and to the specialty area of cardiopulmonary physical therapy. Two full-time clinical experiences occur during the first year. During the second year, which begins in late May and continues into the following April, students study the management of patients with orthopedic and neurological abnormalities. Course work also

addresses concerns unique to pediatric and geriatric patients. In addition, students plan and initiate a research project under the supervision of faculty. Most of the third year, which begins in late May and ends in December, is devoted to clinical education. Time also is provided for elective courses and for completion of the research project. Full-time clinical experiences occur at facilities located in various parts of Texas and the surrounding states. Relocation to off campus facilities is at the student's expense. The professional curriculum is fully accredited by the American Physical Therapy Association. Upon satisfactory completion of the program, students are eligible to become active members of the American Physical Therapy Association and to take the state licensure examination which is required in order to practice as a professional physical therapist. Further information about the program can be obtained by calling (915) 747-8207.

College of Science

Biological Sciences
Chemistry
Geological Sciences
Interdisciplinary Studies
Mathematical Sciences
Physics

Dr. Jack Bristol, Dean
Dr. Pablo Arenaz, Associate Dean
Dr. E. Alan Dean, Assistant Dean

Bell Hall, Room 100
Phone: (915) 747-5536
Fax: (915) 747-6807

The College of Science

The College of Science is the home of the University's first doctoral degree program, the Doctor of Geological Sciences, which was approved in 1974. Its first degree was conferred in 1979, and, in 1991, the designation of the degree was changed to PhD in Geology. The College of Science also is involved in two multidisciplinary PhD programs. The Department of Chemistry and the Department of Physics are participants in a program leading to the PhD degree in Materials Science and Engineering, administrated by the Materials Research Institute. The Departments of Biological Sciences, Chemistry, and Geological Sciences are participants in a program leading to the PhD degree in Environmental Science and Engineering, administrated by the Center for Environmental Resource Management. Information about admission to these programs and degree requirements is found in the sections of this catalog dedicated to interdisciplinary programs.

In addition, the College offers Master of Science degrees in Biological Sciences, Chemistry, Geological Sciences, Geophysics, Mathematics, Physics, and Statistics. A five-year BS-MS program is offered in Chemistry, and the Department of Mathematical Sciences offers a Master of Arts in Teaching with a major in Mathematics (MAT).

A Master of Science in Interdisciplinary Studies (MSIS) degree is available to students who wish to undertake interdisciplinary studies which cannot be accommodated within the normal programs of the College's academic departments. Curricula in this program are individualized to meet the needs of its students.

DOCTOR OF PHILOSOPHY IN ENVIRONMENTAL SCIENCE AND ENGINEERING

The PhD in Environmental Science and Engineering is an interdisciplinary doctoral program, coordinated by the Center for Environmental Resource Management (CERM), to prepare scientists and engineers to address the environmental issues facing this region, the nation, and the world. The program emphasizes a cross-disciplinary perspective to the understanding, management, and remediation of human impacts on the environment, with a particular focus on problems of the Southwest Border region. For information regarding admission and degree requirements see the section for Interdisciplinary Studies after the College of Science section.

DOCTOR OF PHILOSOPHY IN MATERIALS SCIENCE AND ENGINEERING

The PhD in Materials Science and Engineering is an interdisciplinary doctoral program, coordinated by the Materials Research Institute (MRI), to prepare scientists and engineers to address the rapidly expanding opportunities and problems created by emerging materials-related industries. The program emphasizes a cross-disciplinary perspective of this vital field with a range of skills linking materials, structure, properties, synthesis and processing, and performance. For information regarding admission and degree requirements see the section for Interdisciplinary Studies after the College of Science section.

Master of Science in Interdisciplinary Studies

2404A Geology Building
(915) 747-5218

PROGRAM DIRECTOR: William C. Cornell

The MSIS program is designed to satisfy the need for interdisciplinary graduate programs of study which cannot be accommodated within the confines of the normal graduate programs of the university's academic departments. Typical interdisciplinary courses of study include Arid Region Studies, Environmental Science, Resource Management, Engineering Management, Materials Science, curricula in Computer Applications, and others. All such interdisciplinary programs require courses from the offerings of several different departments. The curricula under the MSIS program are individually tailored to the needs of each student.

Requirements for Admission

In addition to the other Graduate School entrance requirements, including a satisfactory score on the GRE, applicants for the MSIS program must submit a letter outlining their proposed areas of study and their graduate education goal. Upon the receipt of the application documents and letter, an evaluation is made to determine the Program's ability to satisfy the needs of the applicant, and the applicant is subsequently advised. Upon acceptance of the applicant into the program, a Guidance Committee, made up of at least three graduate faculty members from different departments, is selected by the Program Director to guide the student in his or her program. Faculty selected will normally have interests and expertise in the student's proposed field of study. Courses for the individual study plan are determined by the committee in consultation with the student. This committee normally also acts as the student's examination committee.

Special Requirements for the MSIS Degree

The MSIS degree requires 36 hours of graduate credit course work; at least 27 of these hours must be selected from 0500 level courses. The individually designed curriculum must include courses from the offerings of at least three different departments with no more than 15 hours in the department of highest course concentration and no more than 12 hours of credit from any other single department. At least half of all semester hours credited toward the degree must be selected from graduate credit courses offered by science and/or engineering departments.

Up to six hours of individual instruction graduate-level problem solving courses may be used to satisfy degree requirements. Students enrolled in such courses are expected to submit a report of the work accomplished. If the student desires and the Guidance Committee concurs, this report may be bound and presented in the form of a thesis.

The individualized curricula are composed of courses listed under the various individual departmental offerings in this catalog.

Biological Sciences

226 Biology Building
(915) 747-5844

CHAIRPERSON: Louis N. Irwin

PROFESSORS EMERITUS: Artie L. Metcalf

GRADUATE FACULTY: Arenaz, Bristol, Das, Ellzey, Freeman, Goldstein, Harris, Hunter, Irwin, Jones, Lehker, Lieb, MacKay, Rael, Redetzke, Walsh, Webb, Worthington

The Department of Biological Sciences offers a Master of Science degree in Biological Sciences.

DEPARTMENTAL REQUIREMENTS FOR THE MS DEGREE

The Department of Biological Sciences requires that all incoming graduate students take the GRE general test. Eight semester hours of General Chemistry must be completed, in addition to general catalog prerequisites for entering students.

Thesis Option: Thirty semester hours are required for the MS in Biological Sciences. Nine semester hours of undergraduate upper division courses (0300 or 0400) may be counted for graduate credit. A minimum of 21 of the 30 semester hours must be in graduate courses (0500), of which six hours of Thesis (Biology 3598-3599) will

be counted towards the 30 semester hour requirement. No more than six hours of Biology 3502 (Research in the Biological Sciences) may be counted as credit toward the 30 semester hour requirement. Each student is required to take three hours of Seminar (1530) or equivalent Special Topics Seminar courses. Six hours in a supporting area (minor) may be accepted by the department. A thesis describing original work is required and must be defended orally. The student should decide on an area of specialization and select a supervising professor within the first semester or 12 semester hours of admission. The supervising professor will act as chairperson of the thesis committee, which will be comprised of a minimum of three graduate faculty members, including one from outside the Department of Biological Sciences.

Non-Thesis Option: This program is limited to certified teachers. The total credit hours required for the degree is 36. Nine hours of approved upper division undergraduate courses (0300-0400) are the maximum acceptable. No more than three hours of Research in the Biological Sciences (3502) may be counted towards the degree. Each student is required to take three hours of Seminar (1530) or equivalent Special Topics Seminar courses. A minor of not more than nine hours from outside of the Biological Sciences may be included if approved. One scholarly paper is required prior to conferral of the degree. Students must pass a comprehensive oral examination

BIOLOGY (BIOL)

For Undergraduate and Graduate Students

1319 Experimental Embryology (0-3)
1498 Special Problems (0-0-2)
2423 Transmission Electron Microscopy (0-4)
2498 Special Problems (0-0-4)
3318 Developmental Biology (3-0)
3320 Genetics (3-0)
3321 Evolutionary Theory (3-0)
3326 Animal Ecology (3-0)
3330 Histology (2-2)
3341 Plants in Southwest Cultures (3-0)
3422 Biological Ultrastructure Interpretation (3-0)
3424 Animal Behavior (3-0)
3425 Field Biology (0-0-9)
3426 Bioarchaeology (2-3)
3490 Biological Practicum (0-0-6)
3498 Special Problems (0-0-6)
4314 Molecular Cell Biology (3-3)

BOTANY (BOT)

For Undergraduate and Graduate Students

3330 Comparative Plant Morphology (3-0)
3340 Plant Physiology (3-0)
4337 Plant Taxonomy (2-4)

MICROBIOLOGY (MICR)

For Undergraduate and Graduate Students

1328 Microbial Ecosystems Techniques (0-3)
1452 General Virology Techniques (0-3)
1456 Medical Mycology Techniques (0-3)
3328 Microorganisms in Ecosystems (3-0)
3451 General Virology (3-0)
3455 Medical Mycology (3-0)
4343 Pathogenic Microbiology (3-3)
4345 Microbial Physiology (3-3)
4349 Prokaryotic Molecular Genetics (3-3)
4453 Immunology (3-3)

ZOOLOGY (ZOOL)

For Undergraduate and Graduate Students

1455 Vertebrate Paleontology Techniques (0-3)
1457 Advanced Vertebrate Paleontology Techniques (0-3)
1481 Vertebrate Physiology Methods (0-3)
3454 Paleozoic and Mesozoic Vertebrate Paleontology (3-0)
3456 Cenozoic Vertebrate Paleontology (3-0)
3480 Vertebrate Physiology (3-0)
3484 Neurobiology (3-0)
4366 Invertebrate Zoology (3-3)
4476 Fish, Amphibians, and Reptiles (3-3)
4478 Birds and Mammals (3-3)

For Graduate Students Only

Biology (BIOL)

1530 Seminar (1-0)
Topics vary and are presented by enrollees and other speakers.

3501 Selected Advanced Topics in the Biological Sciences (3-0)
Course in the form of formal classes. May be repeated for credit when topics vary.

3502 Research in the Biological Sciences (0-0-3)
Emphasizes research, with writing and discussion. Not given as a formal class. May be repeated, but no more than six hours of credit will be counted towards degree. Laboratory fee required.

3505 Herpetology (2-3)
A study of the morphology, taxonomy, and life histories of reptiles and amphibians. Laboratory fee required.

3506 Cytogenetics (3-0)
Study of chromosome structure, function, and behavior. Emphasis on segregational mechanisms in mitosis and meiosis, and genetic consequences of chromosomal aberrations. *Prerequisite*: BIOL 3320.

3507 Biology of the Pleistocene (3-0)
A study of the organisms of the Pleistocene.

3509 Regulation of the Eukaryotic Genome (3-0)
The molecular biology of eukaryotes including genetic engineering, structure and organization of the eukaryotic genome, regulating the expression of eukaryotic genes, and the role of oncogenes in eukaryotes. *Prerequisites*: BIOL 3320 or equivalent, or instructor's approval.

3510 Animal Virology (3-0)
The molecular biology and pathogenesis of animal viruses. Recent discoveries and new directions of research will be emphasized. *Prerequisites*: MICR 3451, and MICR 1452, or instructor's approval.

3513 Biogeography (3-0)
Geographic distribution of plants and animals, and analysis of causative factors.

3516 Biosystematics (3-0)
Methods and principles of taxonomy, classification, and systematics.

3517 Plant Ecology (3-0)
Plant communities and factors that affect their dynamics and stability.

3518 Ecology of Desert Organisms (2-3)
Study of the physiological, morphological, and behavioral adaptations of desert plants and animals. Effects of desert abiotic factors on species, populations, and communities. Laboratory fee required.

3520 Endocrinology (2-3)
A study of the effects and actions of vertebrate hormones with an emphasis on neuroendocrine control. Laboratory fee required.

3523 Ultrastructure (3-0)
Current research advances in cellular biology.

3524 Mammalogy (2-3)
Class Mammalia, with emphasis on morphological, physiological, ecological, and behavioral adaptations to past and present environments. Laboratory fee required.

3526 Advances in Immunological Concepts (3-0)
Study of immunological and immunochemical concepts. Emphasis will be placed on recent experimental advances in immunology. *Prerequisites*: MICR 4453 or instructor's approval.

3527 Advances in Ecological Theory (3-0)
Study of recent advances in ecological theory with special emphasis on adaptation, population structure and dynamics, behavioral processes, and species interactions.

3528 Numerical Analysis in Biology (2-3)
Study and application of specialized numerical methods in biological sciences. *Prerequisites*: Instructor's approval.

3529 Physiology of the Bacterial Cell (3-0)
The study of the biochemical and physiological processes occurring in the bacterial cell. Emphasis will be placed on recent experimental approaches that are in current use in microbial physiology research. *Prerequisite*: Instructor's approval.

3543 Mechanisms of Cellular Toxicity (3-0)
Theory and application of toxicology. Focus will be on the absorption, distribution, excretion, and metabolism of xenobiotic and toxic materials and the molecular approaches to the study of toxicology.

3546 Ecosystem Toxicology (3-0)
Practical analysis of degraded natural communities of plants and animals, including biotic inventories, detection of bio accumulated toxins, and the use of indicator species.

3560 Limnology (3-0)
Study of the freshwater environment, including chemical parameters and biological populations.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on thesis continues. *Prerequisite*: BIOL 3598.

5502 Research in the Biological Sciences (0-0-5)
Emphasizes research, with writing and discussion. Not given as a formal class. May be repeated, but no more than six hours of credit will be counted towards degree. Laboratory fee required.

For Doctoral Students Only

Biology (BIOL)

3612 Biodiversity (3-0)
Genotypio and phenotypio diversity at the population, species, and community levels. Role of bioconservation in maintaining intact communities and preserving genetic heterogeneity.

Chemistry

201A Physical Science Building
(915) 747-5701, 5720

CHAIRPERSON: Russell R. Chianelli

GRADUATE FACULTY: Becvar, Chianelli, Davis, Dirk, Ellzey, Gardea-Torresdey, Herndon, Lloyd, Pannell, Salvador, Smith, Ter Haar

The Department of Chemistry offers studies leading to the degree of Master of Science in Chemistry with experimental and/or theoretical research in the following fields of specialization: analytical, biochemistry, environmental, inorganic, organic, organometallic, physical, chemical physics, and materials science. Through a cooperative program with the Department of Geological Sciences, a MS degree with a concentration in geochemistry is offered. In collaboration with the Department of Geological Sciences, a program that can lead to the doctoral degree in Geological Sciences can be offered (for details concerning the doctoral program, see the listing for the Department of Geological Sciences).

General Departmental Admission Requirements

The normal prerequisite to graduate studies in the Department of Chemistry is the bachelor's degree in Chemistry with a "B" average in chemistry courses taken at the junior and senior level. Acceptable scores on the GRE general test and, when applicable, the TOEFL, are also required.

Master of Science in Chemistry

In addition to the institutional requirements for a Master of Science degree, the candidate must also meet the following stipulations: A minimum of 21 of the required 30 hours of credits must be in courses at the 0500 level. Credits must include at least one graduate level course in three of the five areas of organic chemistry, physical chemistry, inorganic chemistry, analytical chemistry, or biochemistry. The candidate must also enroll in Chemistry 1595 during each semester of residence. Not more than one hour of Chemistry 1595 may be counted toward the 30 credit hour requirement. The normal program for the MS degree in Chemistry may include six hours of supporting work from approved fields. A program of specialization in chemical physics may be elected with the permission of the graduate advisor. Such a program may include, within the required 30 hours of credits, up to 12 hours in the related fields (e.g., Physics, Mathematics). Courses of study are designed for each student in consultation with the advisor. Each student must confer with the graduate advisor prior to each registration. The thesis presented for this degree must describe original work related to a research problem of some importance. The thesis must be defended orally.

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 fifth year of study in Chemistry. Qualified students should consult their academic advisor about the course of study and about the various forms of financial assistance obtainable through this program.

For Undergraduate and Graduate Students

1310 Laboratory for Chemistry 3310 (0-4)
1351 Laboratory for Chemistry 3351 (0-4)
1352 Laboratory for Chemistry 3352 (0-4)
1465 Laboratory for Inorganic Chemistry (0-4)
1476 Introduction to Research (0-0-3)
2321 Laboratory for Chemistry 3321 (0-6)
2322 Laboratory for Chemistry 3322 (0-6)
2411 Instrumental Methods of Analytical Chemistry (2-0)
2412 Laboratory for Chemistry 2411 (0-6)
3310 Analytical Chemistry (3-0)
3321 Organic Chemistry (3-0)
3322 Organic Chemistry (3-0)
3351 Physical Chemistry (3-0)
3352 Physical Chemistry (3-0)
3428 Advanced Topics in Organic Chemistry (3-0)
3430 Topics in Biochemistry (3-0)
3432 Biochemistry (3-0)
3462 Structure of Matter (3-0)
3465 Inorganic Chemistry (3-0)
3476 Introduction to Research (0-0-9)
3480 Polymer Chemistry (3-0)

For Graduate Students Only

Chemistry (CHEM)

1595 Graduate Seminar (1-0)

1596 Graduate Research in Chemistry (0-0-1)
Prerequisite: Graduate standing and instructor's approval.

3501 Modern General Chemistry (3-0)
An intensive course intended for school teachers, which presents a thorough grounding in the basic principles of chemistry. May not be counted toward the MS Degree in Chemistry. *Prerequisite*: 18 semester hours of undergraduate Chemistry.

3518 Advanced Analytical Chemistry (3-0)
Chemical equilibrium and its applications to separation and analysis.

3519 Contemporary Topics in Analytical Chemistry (3-0)
Selected topics of current interest in modern analytical chemistry. May be repeated for credit when topics vary.

3521 Advanced Organic Chemistry I (3-0)
A survey of the more important types of reactions in organic chemistry; reaction mechanisms, stereochemistry of intermediates and products, current structural theory. *Prerequisite*: CHEM 3322.

3522 Advanced Organic Chemistry II (3-0)
A continuation of Chemistry 3521. *Prerequisite*: CHEM 3521.

3529 Contemporary Topics in Organic Chemistry (3-0)
Selected topics of current interest in descriptive and theoretical organic chemistry. May be repeated for credit when topics vary.

3539 Contemporary Topics in Biochemistry (3-0)
Selected topics of current interest in organic or physical aspects of biological chemistry. May be repeated for credit when topics vary.

3551 Advanced Physical Chemistry I (3-0)
Schroedinger wave mechanics; atomic and molecular quantum states; applications to the treatment of wave functions for atoms and molecules.

3552 Advanced Physical Chemistry II (3-0)
Classical and statistical thermodynamics; applications to physical and chemical systems.

3559 Contemporary Topics in Physical Chemistry (3-0)
Selected topics of current interest in experimental and theoretical fields of physical chemistry. May be repeated for credit when topics vary.

3561 Advanced Inorganic Chemistry (3-0)
Ionic, metallic, and covalent bonding; valence bond, molecular orbital, and ligand field theories; structure and properties of coordination compounds, metal carbonyls, and complexes.

3569 Contemporary Topics in Inorganic Chemistry (3-0)
Selected topics in Inorganic Chemistry. May be repeated for credit when topics vary.

3596 Graduate Research in Chemistry (0-0-3)
Prerequisite: Graduate standing and instructor's approval.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on thesis continues. *Prerequisite*: CHEM 3598.

Geological Sciences

Geological Sciences 101
(915) 747-5501

CHAIRPERSON: G. Randy Keller, Jr.

GRADUATE FACULTY: Anthony, Clark, Cornell, Doser, Goodell, Hoffer, Keller, LeMone, Miller, Ohlmacher, Pingitore, Schmidt

Graduate Programs in Geological Sciences

General requirements for the Master of Science degree can be found in the "General Information" section of this catalog.

MS Degree—Geological Sciences

Departmental Requirements—Students must have accomplished the equivalent of the BS degree requirements in geology, including those required courses in supporting disciplines. The Graduate Record Examination (GRE) is required for admission. For the MS degree program, students must present 30 hours including a thesis (six hours). At least 21 hours must be in courses numbered 3500 or above. Work in supporting fields (a minor) is not specifically required. However, course work in supporting fields will often be included in a student's program of study with the approval of the Graduate Advisor and the Graduate School. All candidates are required to enroll in Geology 1501 every semester they are in residence. All candidates are required to pass an oral examination concerning their thesis investigation.

MS Degree—Geophysics

Departmental Requirements—Students must have successfully completed the equivalent of the BS requirements in geophysics, including the required courses in supporting disciplines. The Graduate Record Examination (GRE) is required for admission. For the MS degree program, students must present 30 hours including a thesis (six hours). At least 21 hours must be in courses numbered 3500 or above. Work in supporting fields (a minor) is not specifically required. However, course work in supporting fields will often be included in a student's program of study with the approval of the Graduate Advisor and the Graduate School. All candidates are required to enroll in Geology 1501 every semester they are in residence. All candidates are required to pass an oral examination concerning their thesis investigation.

For those prospective MS students in the geological sciences whose BS degree was not in the geological sciences, the basic geological training can be acquired through an individualized program of remediation including Field Camp (6465) or equivalent. Most students can concurrently proceed to the 30 hours of course work in the selected areas, as shown above. Students without a foundation in geology or science may be advised to enroll as a non-degree student while meeting prerequisites.

PhD in Geological Sciences

Requirements for Admission—Students aspiring to the PhD in *Geological Sciences fall into three categories:*

Students who hold a master's degree from an accredited institution in one of the following areas: biology, chemistry, mathematics, physics, computer science, or engineering, and intends to make up all deficiencies in geological background and students holding the *baccalaureate from an accredited institution in one of the above* areas are encouraged to contact the Graduate Advisor to discuss procedures leading to acceptance into the program..

A Doctoral Student is one who (1) holds a master's degree in the Geological Sciences from an accredited institution, or (2) holds a *bachelor's degree in the Geological Sciences from an accredited* institution and has no deficiencies in science courses required for the BS degree in Geological Sciences at UTEP and has completed 30 hours of post-bachelor's study in geological sciences, or (3) has been removed from the Provisional Doctoral Student category by *removing any deficiencies, completing 18 graduate hours in* Geological Sciences, and receiving recommendations for Doctoral Student status from the Advisory Committee.

A Doctoral Candidate is one who (1) has removed all academic deficiencies, (2) has completed at least three-fourths of the required *credit hours in Geological Sciences* and supporting fields, (3) has passed the prescribed Comprehensive Examination, and (4) has been approved for Candidacy by the Graduate School, upon the recommendation of the Comprehensive Examination Committee.

Course Requirements—The PhD in Geological Sciences degree *requires a minimum of 60 semester hours of graduate study* beyond the baccalaureate or a minimum of 30 semester hours of graduate study beyond the master's degree. A dissertation is required. Not more than one fifth of the required graduate hours can be earned in Directed Studies courses.

Technical Sessions (Geology 1501) is a required course each semester the student is in residence.

Foreign Language/Computer Programming Language—Proficiency in a foreign language and/or computer programming language will be required by a students's dissertation committee when it is necessary for the successful completion of the student's dissertation.

Committees—For each provisional doctoral student or doctoral student, the Graduate Advisor shall appoint an Advisory Committee consisting of three members of the graduate faculty.

For each doctoral candidate, a Doctoral Committee will consist of the dissertation advisor, at least two professors in the Department of Geological Sciences, and at least one scientist or engineer from outside the Department of Geological Sciences—all of whom are members of the graduate faculty and are approved by the Graduate School. The total committee shall consist of at least five individuals.

Examinations—The Graduate Advisor will appoint a Comprehensive Examination Committee to administer the Comprehensive Examination. The Comprehensive Examination will normally be taken after removal of all deficiencies and completion of most of the course work. Any student who fails the Comprehensive Examination twice shall be barred from further consideration for Doctoral Candidacy.

Dissertation—A doctoral dissertation is required. This dissertation must demonstrate the candidate's capacity for originality and independence in recognizing a significant geological problem, in carrying out an effective investigation, and in interpreting and reporting the results. The subject of the dissertation is to be selected in consultation with the dissertation advisor, and it must be approved by the student's Doctoral Committee and by the Graduate School. The dissertation advisor is to supervise the research work and to consult with other members of the Doctoral Committee on the progress of the work.

The candidate is required to defend the dissertation before the faculty of the University in an open meeting under the supervision of his Doctoral Committee.

Draft copies of the dissertation must be submitted to the Doctoral Committee six days before the defense and any suggested corrections must be made. Prior to commencement and by the published deadlines, two copies of the final bound dissertation, and the unbound original, must be submitted to the Graduate School. Two bound copies must also be submitted to the Graduate Advisor.

Microfilming of Dissertation—The doctoral candidate who has successfully completed all requirements for the degree is required to pay the cost of microfilm reproduction of the complete dissertation. The signed original copy (unbound) of the doctoral dissertation is sent from the Office of the Graduate School to University Microfilms, Ann Arbor, Michigan, for reproduction.

With the dissertation the student must also submit to the Graduate School two copies of an abstract, not to exceed two pages in length (double-spaced) which has been approved in final form by the Doctoral Committee. This will be published in *Dissertation Abstracts International*.

Publication by microfilm does not preclude subsequent publication of the dissertation, in whole or in part, as a monograph or in a journal. Copyright at the author's expense may be arranged, if desired, by completing a special form to be secured in the Graduate School Office. In order to protect patent or any other rights, the Graduate School may be requested to delay publication by microfilm for a period of one year. This request must be supported by a written recommendation of the supervising professor.

Time Limits and Catalog Changes—All requirements for a PhD in Geological Sciences must be completed within one eight year period. Work more than eight years old is lost and can be reinstated only by special permission of the Graduate School upon recommendation of the Departmental Committee on Graduate Studies. Further, all requirements for the doctorate must be completed within five years after passing the comprehensive examination.

General and specific requirements for degrees in the Graduate School may be altered in successive catalogs. Provided the requisite course continues to be offered, the student is bound only by the course requirements of the catalog in force at the time of admission or re-admission within an eight year limit, unless, with the approval of the Graduate School, he or she elects to be bound by the course requirements of a subsequent catalog. This regulation applies to course requirements only.

Departmental Requirements—Doctoral candidates in Geological Sciences who intend to specialize in Geology, Geophysics, Geochemistry, Environmental Geoscience, or Geobiology must have an MS degree in the fields shown above. MS degree students in other scientific fields or Engineering must make up the basic geological training. This includes an individualized program of remediation including Field Camp (6465) or equivalent plus any other course work recommended by the Graduate Studies Committee. Concurrently most of these students can proceed to the 30 hours course work in their selected area of Geological Sciences. Of the 60 (post-baccalaureate) hours required for the Doctoral degree, no more than 9 hours may be at the upper division level.

For Undergraduate and Graduate Students

Geology (GEOL)

1455 Vertebrate Paleontology Techniques (0-3)
1457 Advanced Vertebrate Paleontology Techniques (0-3)
1466 Directed Study, Geology (0-0-1)
2466 Directed Study, Geology (0-0-2)
3454 Paleozoic and Mesozoic Vertebrate Paleontology (3-0)
3456 Cenozoic Vertebrate Paleontology (3-0)
3462 Stratigraphy (2-3)
3466 Directed Study, Geology (0-0-3)
3480 Environmental Geology (3-0)

Geophysics (GEOP)

1467 Directed Study, Geophysics (0-0-1)
2467 Directed Study, Geophysics (0-0-2)
3432 Exploration Geophysics, Seismic Methods (2-3)
3434 Exploration Geophysics, Non-Seismic Methods (2-3)
3467 Directed Study, Geophysics (0-0-3)

For Graduate Students Only

Geology (GEOL)

1501 Graduate Seminar (1-0)
Required of all graduate students. Discussion of various geological topics by the faculty, graduate students, and speakers from industry and other institutions. *Prerequisite*: Graduate standing.

1515 Selected Topics in the Geological Sciences (1-0)
Study of advanced topics in such fields as structural geology, environmental geoscience, economic geology, paleontology, petrology, and geochemistry. May be repeated when the topics vary. *Prerequisite*: Instructor's approval.

1562 Directed Study in Geology (0-0-1)
Prerequisites: Graduate standing and instructor's approval.

2515 Selected Topics in the Geological Sciences (2-0)
Study of advanced topics in such fields as structural geology, environmental geoscience, economic geology, paleontology, petrology, and geochemistry. May be repeated when the topics vary. *Prerequisite*: Instructor's approval.

2562 Directed Study in Geology (0-0-2)
Prerequisites: Graduate standing and instructor's approval.

2589 Graduate Research in Geological Sciences (0-0-2)
Cannot be used to satisfy minimum degree requirements. Grade of S or U. *Prerequisites*: Graduate standing and instructor's approval.

3515 Selected Topics in the Geological Sciences (3-0)
Study of advanced topics in such fields as structural geology, environmental geoscience, economic geology, paleontology, petrology, and geochemistry. May be repeated when the topics vary. *Prerequisite*: Instructor's approval.

3543 Isotope Geology (2-1)
Study of the systematics and geochemistry of radiogenic and stable isotopes. The course includes both geochronology and the use of isotopes as tracers in igneous, sedimentary, and metamorphic processes. *Prerequisite*: Graduate standing. Laboratory fee required.

3544 Advanced Petrology (2-3)
Study of magmas and magma genesis in light of field, theoretical, and experimental considerations. The course includes interpretation of isotopic and trace-element data. Laboratory studies focus on field trips and petrographic description of thin-sections. *Prerequisites*: GEOL 3315 or equivalent; CHEM 3351-3352 recommended. Laboratory fee required.

3545 Environmental Geochemistry (3-0)
Processes of a geological nature which are important in environmental studies will be the topic of this course. The geological context is usually important in determining the effect of foreign intrusions into the natural environment. The course will involve problem solving, class participation, exams, field trips, and a semester project report. *Prerequisite*: Graduate standing or instructor's approval.

3562 Directed Study in Geology (0-0-3)
Prerequisites: Graduate standing and instructor's approval.

3563 Sandstone Petrology (2-3)
Petrographic description and interpretation of modern and ancient sand-sized sediment focusing on grain provenance, diagenesis, and porosity. A compositional range of sands and sandstones are examined, from quartzose to volcaniclastic varieties. *Prerequisite*: GEOL 3214 and GEOL 3325, or instructor's approval.

3564 Sedimentary Depositional Environments (3-0)
Reconstruction of ancient sedimentary depositional environments using facies analysis and comparison with modern analogues. The environments addressed include alluvial, fluvial, eolian, lacustrine, marginal marine, and marine settings. Field trips are included. *Prerequisite*: GEOL 3325 or instructor's approval.

3565 Tectonics and Sedimentation (3-0)
The study of sedimentary basin evolution within a plate tectonic framework. Readings from the literature will stress modern analogues, ancient equivalents, and basin-analysis techniques. Field trips are included. *Prerequisite*: GEOL 3325 or instructor's approval.

3567 Advanced Stratigraphy (2-3)
The history, usage, and subtleties of stratigraphy will be investigated through lectures, assigned readings, and examples. Students will have the chance in the field to see if they agree with those who have defined real stratigraphic units. *Prerequisite*: GEOL 3462 or instructor's approval. Laboratory fee required.

3570 Tectonics (3-0)
Extensive readings on selected topics in and a broad review of the major principles and theory of tectonics. *Prerequisites*: GEOL 4323 and graduate standing.

3575 Quantitative Techniques in the Geological Sciences (2-3)
Introduction to techniques for quantitative analysis of geologic data. Emphasis on the extraction of maximum information from large data matrices. Specific applications to petroleum and mineral exploration. Laboratory fee required.

3576 Low Temperature Geochemistry (2-2)
Chemical reactions at the earth's surface and their interpretation by thermodynamic and kinetic principles. Precipitation and dissolution, the solid-solution interface, oxidation and reduction, the distribution and circulation of elements and compounds. *Prerequisite*: CHEM 3106. Laboratory fee required.

3577 Principles of Geochemistry (3-0)
Chemical processes involved in the distribution and migration of the elements on the earth through space and time. Principles of solution and mineral equilibria in surficial, sedimentary, hydrothermal, and igneous environments. *Prerequisite*: Graduate standing.

3578 Advanced Mineralogy (2-1)
The study of the properties of crystalline solids, including their internal structure and chemistry, surface reactions, and crystal growth and dissolution. *Prerequisite:* Graduate Standing. Laboratory fee required.

3579 Petroleum Geochemistry (3-0)
Examination of the biologic, chemical, and geologic processes involved in the accumulation of petroleum-source rocks, including diagenesis, catagenesis, and metagenesis of petroleum prone organic matter; of migration, accumulation, and maturation of liquid hydrocarbons; and of geochemical parameters useful in hydrocarbon exploration. *Prerequisite*: Graduate standing or instructor's approval. Laboratory fee required.

3580 Analytical Methods in Geology (2-3)
Theory and application of x-ray diffraction, x-ray fluorescence, atomic absorption, differential thermal analysis, DCP, and spectrofluorimetry to chemical analyses of geological materials. *Prerequisite*: Graduate standing and instructor's approval. Laboratory fee required.

3582 Chemical Hydrogeology (3-0)
A study of the chemistry of ground and surface water. Subjects covered by the course are the chemistry of natural waters, chemistry of weathering, chemical interactions between geological materials and water, groundwater contamination and the movement of contaminants in groundwater. *Prerequisite*: GEOL 3576 or instructor's approval.

3583 Physical Hydrogeology (3-0)
A study of the geological controls on ground and surface water flow. Subjects studied are the geology of aquifers, a review of major aquifers in North America, aquifer hydraulics, Darcy's law aquifer tests, and groundwater flow modeling. *Prerequisite*: Instructor's approval.

3584 Nuclear Waste Disposal (3-0)
In-depth study of problems and issues associated with the past, current, and projected principles and methods of nuclear waste disposal. The multidisciplinary legal, political and technical aspects of siting, operation, and decommissioning of reactors and the subsequent removal of source waste generated at these facilities is considered. The course examines waste removal, classification, containerization, quality assurance, and transport. Waste repository site selection, performance assessment, operation, and entombment in various geological media are stressed. *Prerequisites*: Graduate standing; students outside the colleges of Engineering and Science will require instructor's approval.

3585 Numerical Methods in Geology (3-0)
Introduction to the theory and application of numerical methods (finite differences and finite elements) with application to problems in hydrology, environmental geology, and structural geology. Subjects covered include general mechanics of groundwater flow, general continuum mechanics, geologic influences on model design, model limitations, convergence, calibration, and verification. *Prerequisite*: GEOL 3583 or instructor's approval.

3586 Engineering Geology (3-0)
Introduction to the application of geologic fundamentals to geotechnical engineering and the analysis of geologic processes using continuum mechanics. Subjects covered include general soil and rock mechanics, slope stability, surface water and flooding, subsidence, earthquakes, volcanoes, shore line processes, expansive soils, and geologic aspects of engineering works (dams, tunnels, buildings, etc.). *Prerequisite*: GEOL 4323, or GEOL 3321, or instructor's approval.

3587 Applied Quaternary Geology (3-0)
Addresses pertinent topics of Quaternary science (including paleoclimatology, geomorphology, hydrogeology, pedology, geochronology, neotectonics, and geophysics) in an environmental context. Major bodies of environmental regulation will be introduced and the relationship of these regulations to Quaternary science will be emphasized. Environmental case studies of national significance will be an integral part of the course. Graduate students from other disciplines are encouraged. *Prerequisite*: Graduate standing or instructor's approval.

3589 Graduate Research in Geological Sciences (0-0-3)
Cannot be used to satisfy minimum degree requirements. Grade of S or U. *Prerequisites*: Graduate standing and instructor's approval.

3594 Mining Geology (3-1)
Geologic mapping, sample drilling, reserve calculations, and economic evaluation of actively exploited and potential economic mineral deposits. Mine visits required. *Prerequisite*: Graduate standing. Laboratory fee required.

3597 Geology and Mineral Resources of Mexico (3-0)
Stratigraphic and structural framework of the Republic of Mexico with particular reference to the distribution of mineral resources. Field excursion required. *Prerequisite*: Graduate standing.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on thesis continues. *Prerequisite*: GEOL 3598.

4505 Biostratigraphy (3-3)
The systematic analysis of the separation and differentiation of rock units on the basis of the assemblages of fossils which they contain; special emphasis will be placed on the evolution of biothermal systems through time and problems of the establishment and utilization of biostratigraphic units and chronostratigraphic boundaries. *Prerequisite*: Graduate standing in Geology or Biology, or instructor's approval. Laboratory fee required.

Geophysics (GEOP)

1563 Directed Study in Geophysics (0-0-1)
Prerequisites: Graduate standing and instructor's approval.

2558 Geophysical Field Methods (1-3)
An overview of geophysical techniques stressing field applications. Students will participate in seismic, gravity, magnetic, electrical, and radiometric surveys in actual field situations. A report discussing data collection procedures, data processing, and interpretations is required. *Prerequisite*: Instructor's approval. Fees required.

2563 Directed Study in Geophysics (0-0-2)
Prerequisites: Graduate standing and instructor's approval.

3551 Groundwater Geophysics (2-2)
Survey of geophysical field data collection, reduction, and interpretation techniques applied to groundwater, geotechnical, and waste disposal studies. Topics include gravity, magnetics, reflection, and refraction seismology, electrical methods, and well logging. A strong emphasis is placed on data interpretation on actual studies in the southwest. Laboratory fee required.

3552 Geophysical Inverse Theory (3-0)
The quantitative study of mathematical methods used to interpret geophysical measurements and determine earth structure. Techniques for both linear and non-linear geophysical problems are studied to determine the resolution and precision of a geophysical model from a given set of data. *Prerequisites*: GEOP 3432, GEOP 3434, and MATH 3323, or instructor's approval.

3553 Reflection Seismic Data Processing (2-2)
The computer application of digital signal processing to reflection seismic data from environmental, petroleum, and crustal surveys. Topics include: definition of survey geometries, data editing techniques, amplitude recovery, bandpass filtering, deconvolution, velocity analysis, F-K filtering, and migration. *Prerequisites*: GEOP 3432, GEOP 4560, or instructor's approval.

3554 Seismology (3-0)
A study of earthquake seismology, seismotectonics, and the use of seismological methods to determine earth structure. A theoretical foundation is provided by the study of wave propagation in homogeneous and isotropic media from the standpoint of both ray and wave theory. *Prerequisites*: MATH 3436, PHYS 3351, or instructor's approval.

3555 Potential Theory (3-0)
A study of the applications of potential theory to the fields of gravity, heat flow, magnetics, and geoelectricity. Emphasis will be placed on methods for solving classes of problems and the geophysical interpretation of solutions. *Prerequisite*: Graduate standing or instructor's approval.

3556 Topics in Geophysics (3-0)
Study of advanced topics in the fields such as exploration geophysics, geothermics, theoretical seismology, potential field, data analysis, environmental applications, inversion, seismotectonics, crustal studies, and global tectonics. May be repeated for credit when the topics vary. *Prerequisite*: Instructor's approval.

3557 Well Logging (2-2)
The application of well logs to hydrogeologic, petroleum, and mineral studies to characterize sedimentation history and quantitatively evaluate rock and fluid properties. *Prerequisite*: Graduate standing. Laboratory fee required.

3561 Plate Tectonics (3-0)
The application of geological and geophysical data to the description and evolution of motion between the lithospheric plates. Topics include: relative velocities between plates, triple junctions, plate rotations, seismicity and plate boundaries, marine magnetic anomalies, paleomagnetism, plate driving mechanisms, and relationship of plate tectonic processes to the geologic evolution of the western United States. *Prerequisite*: Graduate standing or instructor's approval.

3562 Reflection Seismic Data Interpretation (2-2)
The fundamentals of the geologic interpretation of reflection seismic data. Introduction to seismic data acquisition and processing, and their effects on data interpretation. Interpretation techniques: well log to seismic ties, contour maps, fault plane maps, time-to-depth conversion. Interpretation of data from different structural settings. Seismic stratigraphy and applications of sequence stratigraphy to seismic stratigraphic interpretation. 3-D seismic interpretation. *Prerequisite*: Graduate standing. Laboratory fee required.

3563 Directed Study in Geophysics (3-0)
Prerequisites: Graduate standing and instructor's approval.

3564 North American Geophysical Framework (3-0)
Study of the tectonic evolution of North America from an integrated geological/geophysical approach. Recent literature on large-scale geophysical studies of the lithosphere will be emphasized. *Prerequisite*: Graduate standing or instructor's approval.

4560 Geophysical Applications of Digital Signal Processing (3-2)
Computer application of discrete signals and systems to geophysical data in one and two dimensions. Properties of the FFT, DFT, Z-transform, and continuous Fourier integral transform. Digital filter design, spectral analysis, deconvolution, spatial filtering of geophysical data sets. Knowledge of FORTRAN, C, or mathematical software package required. *Prerequisite*: Graduate standing or instructor's approval.

For Doctoral Students Only

Geology (GEOL)

1605 Directed Study in Geology (0-0-1)
Prerequisites: Doctoral graduate standing and instructor's approval.

1615 Advanced Topics in the Geological Sciences (1-0)
Advanced topics in paleontology and stratigraphy, mineralogy, environmental geoscience, petrology, geochemistry, structural geology, economic geology, and geophysics. May be repeated for credit when the topics vary. *Prerequisite*: Doctoral graduate standing and instructor's approval.

2605 Directed Study in Geology (0-0-2)
Prerequisites: Doctoral graduate standing and instructor's approval.

2696 Doctoral Research in Geological Sciences (0-0-2)
Cannot be used to satisfy minimum degree requirements. Grade of S or U. *Prerequisite*: Doctoral standing and instructor's approval.

3605 Directed Study in Geology (0-0-3)
Prerequisites: Doctoral graduate standing and instructor's approval.

3615 Advanced Topics in the Geological Sciences (3-0)
Advanced topics in paleontology and stratigraphy, mineralogy, environmental geoscience, petrology, geochemistry, structural geology, economic geology, and geophysics. May be repeated for credit when the topics vary. *Prerequisite*: Doctoral graduate standing and instructor's approval.

3620 Dissertation (0-0-3)
Initial work on dissertation.

3621 Dissertation (0-0-3)
Continued enrollment required while work on dissertation continues. *Prerequisite*: GEOL 3620.

3696 Doctoral Research in Geological Sciences (0-0-3)
Cannot be used to satisfy minimum degree requirements. Grade of S or U. *Prerequisite*: Doctoral standing and instructor's approval.

Geophysics (GEOP)

1610 Directed Study in Geophysics (0-0-1)
Prerequisites: Doctoral graduate standing and instructor's approval.

2610 Directed Study in Geophysics (0-0-2)
Prerequisites: Doctoral graduate standing and instructor's approval.

Math matical Sciences

124 Bell Hall
(915) 747-5761

CHAIRPERSON: Joe A. Guthrie

GRADUATE FACULTY: Dennis, Duval, Foged, Gregory, Guthrie, Kaigh, Khamsi, Knaust, Moschopoulos, Nymann, Rojo, Schuster, Sewell, Srinivasan, Staniswalis, Valdez-Sanchez, Wojciechowski

The Department of Mathematical Sciences offers the Master of Science (MS) degree in Mathematics or Statistics and the Master of Arts in Teaching (MAT) with a major in Mathematics.

DEPARTMENTAL REQUIREMENTS FOR THE MS DEGREE
For the MS degree, both thesis and non-thesis options are available. The thesis option requires 24 semester hours of course work plus the completion of the six-semester hour thesis. The non-thesis option requires 36 semester hours of course work including MATH 3596. In either case a maximum of nine semester hours of approved upper-division undergraduate courses are acceptable. Particular courses of study for the MS must be approved by the departmental committee on graduate studies. The passing of a comprehensive examination is required. All MS students must enroll in MATH 1595 each semester in residence.

SPECIFIC REQUIREMENTS FOR THE MS IN MATHEMATICS
Specific course requirements for the MS in Mathematics are MATH 3531, 3551, and 3580.

SPECIFIC REQUIREMENTS FOR THE MS IN STATISTICS
Specific course requirements for the MS in Statistics are MATH 3580, 3581, 3585, and 3588.

DEPARTMENTAL REQUIREMENTS FOR THE MASTER OF ARTS IN TEACHING DEGREE WITH A MAJOR IN MATHEMATICS

Requirements for Admission—In addition to the general requirements for admission to the Graduate School, students must have completed the calculus sequence together with 12 semester hours of advanced courses in mathematics. Since the degree is intended for high school teachers of mathematics, two years of classroom experience are required for admission to this program.

The Master of Arts in Teaching degree with a major in Mathematics requires 36 semester hours of course work. Six to nine of these hours must be taken in the College of Education. The remaining hours must be taken in mathematical sciences. A maximum of nine of these hours may be chosen from 3300 or 3400 level courses. Each student must have his or her courses approved by the Graduate Advisor in order to ensure adequate breadth of courses in the mathematical sciences. A comprehensive examination is required.

For Undergraduate and Graduate Students

Mathematics (MATH)

3319 Elementary Number Theory (3-0)
3320 Actuarial Mathematics (3-0)
3323 *Matrix Algebra (3-0)
3325 *Principles of Mathematics (3-0)
3327 Applied Algebra (3-0)
3328 Foundations of Mathematics (3-0)
3335 Applied Analysis I (3-0)
3341 *Introduction to Analysis (3-0)
3425 Modern Algebra (3-0)
3426 Linear Algebra (3-0)
3429 Numerical Analysis (3-0)
3436 Applied Analysis II (3-0)
3441 Real Analysis (3-0)

Statistics (STAT)

3330 Probability (3-0)
3381 Nonparametric Statistical Methods (3-0)
3480 Statistics I (3-0)

*Cannot be counted toward an MS degree in Mathematical Sciences.

Graduate Courses

Mathematics (MATH)

1595 Graduate Seminar (1-0)
Conferences and discussions of various topics in mathematics and statistics by faculty, graduate students, and outside speakers. Required of all graduate students during each semester of full-time enrollment. May not be counted more than once toward the degree requirement.

3511 Applied Mathematics (3-0)
Mathematics 3511 is designed to introduce the student to those areas of mathematics which are useful in engineering and science. Topics are chosen from Differential Equations, Fourier Series, Calculus of Variations, and Theory of Algorithms. The course may be repeated once as content changes. *Prerequisite*: Instructor's approval.

3521 Principles of Analysis (3-0)
Investigation of convergence, continuity, differentiability, compactness and connectedness, the Riemann-Stieljes integral, and sequences of functions. *Prerequisite*: MATH 3341.

3526 Functions of Several Variables (3-0)
Topics include: Differentiability, inverse-implicit function theorem, Stokes' Theorem. *Prerequisite*: MATH 3521.

3529 Numerical Analysis (3-0)
Introduction to approximation theory, interpolation, numerical differentiation and integration, solutions of linear and non-linear equations, numerical solution of differential equations, optimization. Emphasis is on error analysis and stability. Several practical examples and computer programs will be covered. *Prerequisites*: The analysis equivalent of MATH 3341 and a working knowledge of a high level programming language.

3530 Computational Methods of Linear Algebra (3-0)
Numerical methods involved in the computation of solutions of linear systems of equations, eigenvalues, linear least squares solutions; linear programming; error analysis. *Prerequisites*: MATH 3323 and a working knowledge of a high level programming language.

3531 Real Variables (3-0)
Lebesgue integration, integration with respect to measure, absolute continuity, Fundamental Theorem of Calculus for the Lebesgue integral. *Prerequisite*: MATH 3521.

3541 General Topology (3-0)
Topics include: Separation, compactness, connectedness, paracompactness, metric spaces, and metrization of topological spaces. *Prerequisite*: MATH 3521.

3543 Numerical Solutions to Partial Differential Equations (3-0)
Introduction to finite difference and finite element methods for the solution of elliptic, parabolic, and hyperbolic partial differential equations. *Prerequisites*: MATH 3226, MATH 3323, and MATH 3429 with a "C" or better or their equivalents and knowledge of a high level programming language.

3551 Complex Variables (3-0)
Complex integration and the calculus of residues. Analytical continuation and expansions of the analytic function. Entire, meromorphic, and periodic functions. *Prerequisite*: MATH 3521 or its equivalent as approved by the instructor.

3570 Seminar (3-0)
Various topics not included in regular courses will be discussed. May be repeated once for credit as the topics vary. *Prerequisite*: Instructor's approval.

3580 Mathematical Statistics I (3-0)
The probabilistic foundations of mathematical statistics. Probability spaces, random variables, univariate and multivariate probability distributions, conditional distributions, expectation, generating functions, multivariate transformations, modes of convergence, and limit theorems. *Prerequisite*: STAT 3330 or its equivalent as approved by instructor.

3581 Mathematical Statistics II (3-0)
A continuation of Mathematical Statistics I. Parametric statistical models, sufficiency, exponential families, methods of estimation, comparison of estimators, confidence intervals, hypothesis testing, optimal tests, likelihood ratio tests, large sample theory. *Prerequisite*: MATH 3580.

3584 Linear Statistical Models (3-0)
Introduction to the formulation of the general linear model. Topics included the multivariate normal, distribution of quadratic forms, generalized inverses, projection operators, principle of least squares, and Gauss-Markov Theorem. Estimation and hypothesis testing, and analysis of variance in balanced designs. *Prerequisites*: MATH 3426, MATH 3581, or concurrently.

3585 Statistics in Research (3-0)
An introduction to statistical modeling of a univariate response conditional on a test of explanatory variables. Classical formulation of multiple linear regression and analysis of variance. Some discussion of experimental design from power considerations. Selected topics from generalized linear models, nonparametric regression, and quasi-likelihood estimation. Emphasis is on model building, fitting, validation, and subsequent inferences. Analysis of real data using major statistical software packages. *Prerequisites*: MATH 3323, STAT 3480, or instructor's approval.

3586 Stochastic Processes (3-0)
Random walks, discrete time Markov chains, and Poisson Process. Further topics such as continuous time Markov chains, branching processes, renewal theory, and estimation in branching processes. *Prerequisite*: MATH 3441, and STAT 3330, or MATH 3580.

3588 Multivariate Data Analysis (3-0)
Statistical analysis of a multivariate response. Multivariate multiple linear regression, principal components, factor analysis, canonical correlation, and discriminate analysis. Applications with the use of statistical packages will be considered. *Prerequisite*: MATH 3585 or equivalent.

3590 Nonparametric Statistics (3-0)
Distribution-free statistical methods; nonparametric one and two sample tests and analysis of variance; goodness-of-fit tests; nonparametric measures of association; and robust procedures. *Prerequisites*: MATH 3580 or equivalent.

3591 Time Series Analysis (3-0)
Time domain and frequency domain aspects of discrete time stationary processes, correlation functions, power spectra, filtering, linear systems, and ARMA models for nonstationary series. An introduction to the analysis of multiple time series. Some use of statistical software will be included. *Prerequisite*: MATH 3580 or equivalent.

3592 Statistical Computing (3-0)
A study of stochastic simulation and select numerical methods used in statistical computation. *Prerequisites*: A high-level programming language, linear algebra, and STAT 3480 or equivalent.

3596 Graduate Research (0-0-3)
A written report on an appropriate subject in mathematics or statistics is required. May not be counted towards the 24 hours of course work in the thesis option, but may be substituted for three hours of thesis credit. May not be repeated for credit. *Prerequisite*: Instructor's approval.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on thesis continues. *Prerequisite*: MATH 3598 or departmental approval.

Physics

214 Physical Science
(915) 747-5715

CHAIRPERSON: James H. Craig, Jr.
GRADUATE FACULTY: Brient, Craig, Dean, Drucker, Lopez, Ravelo,Russell, Vandergrift, Wang

The Department of Physics offers studies leading to the degree of Master of Science in Physics with experimental and/or theoretical physics research in acoustics, atmospheric physics and optics, condensed matter and surface physics, geophysics, and radiation physics. Through a cooperative program with the Geological Sciences Department, the Master of Science in Geophysics is offered. The department also offers other cooperative plans that can lead to the doctorate degree. For details please contact Graduate Advisor of the Physics Department.

General Departmental Requirements

The normal prerequisite to graduate studies in the Department of Physics in addition to Graduate School requirements, is the bachelor's degree in physics with a "B" average in physics courses taken at the undergraduate level. The bachelor's degree course work should include advanced undergraduate courses in Mechanics, Electromagnetics, Modern Physics, Quantum Mechanics, Thermal Physics, and advanced laboratory practice. Any deficiency must be removed before the petition is made for candidacy for the MS degree.

Master of Science in Physics

The department offers a program of courses and research leading to the MS degree in physics. Two routes are available. Plan 1 requires 30 semester hours of credit: 24 hours of course work plus a six-hour thesis (Physics 3598 and 3599). Plan 2, an alternative route, requires the favorable recommendation of the Physics Department Graduate Studies Committee and 36 hours of course work including the successful completion of a research problem (Physics 3591) with a written report submitted to the department.

Requirements for Plan 1 are a minimum of 21 semester hours of graduate work at the 0500 level including thesis. Specific courses required are Physics 3521, 3525, 3541, 3561, 3598, and 3599.

Requirements for Plan 2 are a petition stating the reason for the alternate route and a minimum of 27 semester hours of graduate work at the 0500 level. Specific courses required are Physics 3521, 3525, 3541, 3561, and 3591.

Students must have their course program approved by the graduate advisor each semester. The student will choose, in consultation with the graduate advisor, a chairperson of the research committee and at least two additional committee members, who will supervise the thesis or research problem. One member of this committee must be from outside the Physics Department. These choices will be made before the student has completed two semesters of graduate work.

The candidate for the MS degree in Physics may have no more than two grades of "C" for courses used to fulfill the requirements of the degree and must pass a final examination which will include an oral defense of the thesis or research problem.

Master of Science in Geophysics

Physics graduate students may elect to obtain the MS degree in Geophysics. This degree requires 30 semester hours including a six-hour thesis. A minimum of 21 hours must be at the 0500 level or above. For physics students, specific courses required are Physics 3521, 3525, 3541, 3598, and 3599. At least 12 hours of approved course work must be selected from the Geology-Geophysics courses offered by the Geological Sciences Department. All physics graduate students with deficiencies in Geology should consult the Graduate Advisor in the Department of Geological Sciences about the development of an individualized plan to remedy such deficiencies.

Thesis supervisory committees will have at least two geophysics representatives from the Geological Sciences Department.

For Undergraduate and Graduate Students

A maximum of nine semester hours of the following undergraduate courses in physics may, with the approval of the graduate advisor, be counted toward a MS in Physics: (An asterisk indicates that the course will only be approved in exceptional cases.)

2343 Advanced Laboratory Practice (0-6)
3323 Physical Optics (3-0)
*3325 Survey of Modern Physics (3-0)
*3331 Thermal Physics (3-0)
*3351 Analytical Mechanics I (3-0)
3352 Advanced Mechanics II (3-0)
*3359 Astrophysics (3-0)
3428 *Theoretical Geophysics* (3-0)
*3441 Electromagnetics I (3-0)
3442 Electromagnetics II (3-0)
*3448 Fundamentals of Acoustics (3-0)
3455 Introduction to Quantum Mechanics (3-0)
3456 Atoms, Molecules, and Solids (3-0)
3457 Relativity, Nuclei, and Particles (3-0)

For Graduate Students Only

Physics (PHYS)

1595 Graduate Seminar (1-0)
May be repeated three times for credit.

1596 Graduate Research in Physics (0-0-1)
This course may be taken as often as needed, but no more than 3 semester credit hours may be applied to satisfy the requirements for the master's degree. A student will receive only an S or U grade except when the student has filed a preliminary degree plan in which this course appears. *Prerequisite*: Consent of Graduate Advisor.

3521 Mechanics (3-0)
Lagrange's equations, nonholonomic constraints, Hamilton's principle, two-body central force, rigid body dynamics, Lagrangian relativistic mechanics, Hamilton and Hamilton-Jacobi equations, and canonical transformations. *Prerequisite*: PHYS 3352. Offered fall semester.

3525 Mathematical Physics (3-0)
Linear systems, special functions, complex variables, and tensor problems in Physics. Offered fall semester.

3541 Electrodynamics I (3-0)
Boundary value problems, polarization and stress tensor. Conservation laws and energy-momentum tensor. Relativistic electrodynamics. Covariant form of field equations. Potentials and gauge invariance. *Prerequisite*: PHYS 3442. Offered spring semester.

3561 Quantum Mechanics (3-0)
Solution of the Schroedinger wave equation for discrete and continuous energy eigenvalues; representation of physical variables as operators and the matrix formulation of quantum mechanics; approximation methods. *Prerequisite*: PHYS 3456. Offered spring semester.

3565 Advanced Statistical Mechanics (3-0)
Classical and quantum statistics of systems in equilibrium. Treatment of fluctuations and transport phenomena. Introduction to many-body problems. *Prerequisite*: PHYS 3331 or equivalent as determined by the instructor.

3571 Solid State Physics (3-0)
Electromagnetic, elastic, and particle waves in periodic lattices as applied to the electrical, magnetic, and thermal properties of solids. *Prerequisite*: PHYS 3456 or instructor's approval.

3575 Topics in Ultra-High Vacuum Technology and Surface Science (3-0)
This course consists of two parts. The first part will discuss the issues involved in production and measurement of ultra-high vacuum including pumps, gauges, and appropriate UHV materials. The second part of the course will discuss the physical principles underlying several surface spectroscopies, including AES, XPS, ESD, LEED, and EELS.

3591 Research Problems in Physics (0-0-3)
Required course for the 36-hour non-thesis option. Requires two copies of a type-written report. May be repeated for credit; maximum credit allowed six hours. May not be counted as thesis research but may be taken one time as a preparatory investigation course prior to the beginning of thesis research. *Prerequisites*: Submission of the Petition of Candidacy and departmental approval.

3593 Special Topics in Physics (3-0)
Topics to be announced. May be repeated for credit.

3596 Graduate Research in Physics (3-0)
This course may be taken as often as needed, but no more than 3 semester credit hours may be applied to satisfy the requirements for the master's degree. A student will receive only an S or U grade except when the student has filed a preliminary degree plan in which this course appears. *Prerequisite*: Departmental approval.

3598 Thesis (0-0-3)
Initial work on the thesis.

3599 Thesis (0-0-3)
Continuous enrollment required while work on thesis continues. *Prerequisite*: PHYS 3598.

6596 Graduate Research in Physics (0-0-6)
This course may be taken as often as needed, but no more than 3 semester credit hours may be applied to satisfy the requirements for the master's degree. A student will receive only an S or U grade except when the student has filed a preliminary degree plan in which this course appears. *Prerequisite*: Departmental approval.

Interdisciplinary Studies

Environmental Science and Engineering
Materials Science and Engineering

INTERDISCIPLINARY STUDIES

Environmental Science and Engin ering

Center f r Environmental Resource Management

Program Director: Charles Groat

PhD In Environmental Science and Engineering

The University of Texas at El Paso presents both an extraordinary setting and excellent capabilities for the multi-disciplinary doctoral program in Environmental Science and Engineering. Located on the U.S.-Mexico border, one of the most environmentally-impacted areas of North America, UTEP has already established itself as a center of environmental research and development activity, with support from the EPA, the NSF, the Department of Energy, private foundations, and state agencies. With support and coordination from the Center for Environmental Resource Management (CERM), faculty and students from several departments conduct research, often in collaboration with local agencies and national laboratories. With the implementation of the North American Free Trade Agreement (NAFTA), the establishment of a new EPA regional laboratory in El Paso and of the joint U.S. and Mexico Border Environmental Cooperation Commission in Ciudad Juárez, Mexico, and UTEP's already established base of collaborations with Mexico on environmental problems, UTEP and El Paso can become an internationally recognized source of cutting-edge research, technology, and education.

Admissions

In addition to Graduate School requirements, students entering the program must have a Master of Science degree or equivalent study in an environmentally related scientific or engineering field. Such fields include but are not limited to chemistry, physics, biology, geology, civil engineering, industrial engineering, electrical engineering, mechanical engineering, and metallurgical engineering. Students are expected to have superior graduate records (GPA > 3.5/4.0) and, for students from countries where English is not the principal language, a minimum TOEFL score of 550. Students must submit at least two letters of reference from individuals qualified to judge their capability to do doctoral-level work. Applicants will be notified of their admission status by the Graduate School.

Degree Requirements

The specific course requirements for each student will be determined by the student's Doctoral Advisory Committee. However, each student must complete at least 60 hours beyond the master's degree. Of the 60 hours, at least 30 hours are organized course work. ESE 3606, Principles of Experimental and Engineering Design (3 semester hours) and ESE 3607, Interdisciplinary Environmental Problem Solving (3 semester hours) are required core courses. Ten to twelve semester hours of optional core courses (Generally ESE 3601, 3603, and one from 4602, 4604, and 4605 are normally taken). Three of these five optional core courses may be counted toward the doctoral degree. Two hours of Graduate Seminar, ESE 1607, which must be taken each semester of full-time enrollment, may be counted toward the degree. The remaining semester hours are filled by research and dissertation (ESE 3696, 3698, and 3699).

Students, depending on their background, may be required to take one or more undergraduate or master's level courses prior to enrolling in core courses. The prerequisite courses will not count for credit toward the doctoral degree. Ten to fifteen additional credits of advanced-level course work are required which, when taken as a whole, lead to in-depth expertise in an area of environmental science or engineering.

Before completing 24 hours of course work, each student will be required to pass a qualifying examination based upon the material covered in the ESE core. Prior to beginning the dissertation research, each student will take a comprehensive examination by his or her Doctoral Advisory Committee. The examination may be written, oral, or both. At this time the student's Doctoral Committee will approve the proposed dissertation topic and determine if the student has the background required to address the topic.

Environmental Science and Engineering (ESE)

1607 Graduate Seminar (1-0)
Presentation and discussion of topics in environmental science and engineering by graduate students, faculty, and visitors. *Prerequisite*: Permission of the ESE Program Director.

3601 *Environmental Law and Policy (3-0)
Focus on the formulation, implementation, enforcement, and evaluation of environmental policies. A review of the legal and administrative environmental systems of both the United States and Mexico will be included. Questions of environmental risk and equity will be addressed. *Prerequisite*: Enrollment in the ESE program or permission of the ESE Program Director.

3603 *Transport, Fate, and Treatment of Contaminants in the Environment (3-0)
Review of transport phenomena active in environmental systems. Fluid flow and contaminant transport in surface waters, groundwaters, the vadose zone, and the atmosphere. Multimedia contaminant transport. Relationship between transport properties and site remediation. Application of computer models for environmental transport. *Prerequisite*: Enrollment in the ESE program or permission of the ESE Program Director.

3606 *Principles of Experimental and Engineering Design (3-0)
Students with different backgrounds examine experimental and engineering design principles with special application to the solution of environmental problems. Student teams will be formed to define an interdisciplinary environmental problem of regional interest. *Prerequisite*: Enrollment in the ESE program or permission of the ESE Program Director.

3607 *Interdisciplinary Environmental Problem Solving (3-0)
Students with different backgrounds will work in teams to examine interdisciplinary environmental issues specific to the far West Texas border region and prepare a group report with recommendations which consider scientific, political, economic, and social aspects. *Prerequisite*: Enrollment in the ESE program and ESE 3606 or permission of the ESE Program Director.

3608 Population Ecology (3-0)
This course will include discussions of population dynamics, factors limiting populations, population projection matrices, demography and life table analysis, stable and stationary populations, survivorship curves, competition, predation, and multiple species assemblages. *Prerequisite*: Instructor's approval.

3609 Community Ecology (3-0)
Interactions between populations, species assemblages, succession, species abundance relations, species richness and diversity, species distribution, niche overlap, resemblance functions, association analysis, ordination interpretation, community stability and structure. *Prerequisite*: Instructor's approval.

3696 Doctoral Research (0-0-3)
Directed research on topics in environmental science and engineering related to the dissertation or conducted as component of the student's overall graduate program. *Prerequisite*: Admission to the ESE program or permission of the ESE Program Director.

3698 Dissertation (0-0-3)
Taken when preparation of the dissertation is begun. One enrollment required. *Prerequisites*: Admission to the ESE program and passage of the comprehensive examination.

3699 Dissertation (0-0-3)
Taken continuously during preparation of the dissertation. *Prerequisites*: Admission to the ESE program and ESE 3698.

4602 *Environmental Chemistry (3-3)
Review of classification and properties of chemical materials of environmental interest. Study of chemical principles pertaining to acidity, basicity, redox properties, solubility, partitioning, and transport in the environment. Chemical reactions in aqueous, soil/sediment and atmospheric phases. Environmental analytical techniques. The laboratory emphasizes analytical protocols utilized in environmental laboratories. *Prerequisite*: Enrollment in the ESE program or permission of the ESE Program Director.

4604 *Environmental Biology (3-3)
An examination of the theoretical and experimental aspects of the relationship between biological and physical environments at the individual, population, community, and ecosystem levels. This includes microbial ecology and biogeochemical cycling of nutrients. *Prerequisite*: Enrollment in the ESE program or permission of the ESE Program Director.

4605 *Environmental Geoscience (3-3)
Application of earth science principles and processes to environmental issues. Topics will include fundamentals of physical geology and their applications to geohazards, engineering geology, surface and ground water, erosion, and environmental geochemistry. Atmospheric and climate topics will include global change issues. Labs will feature hands-on experience with earth materials, maps, analytical techniques, and environmental problem solving. *Prerequisite*: Enrollment in the ESE program or permission of the ESE Program Director.

***Core Courses**

Materials Science and Engineering

Materials Research Institute

Program Director: Lawrence Murr

PhD in Materials Science and Engineering

The field of materials sciences and engineering is central to the technological, industrial, and economic development of Texas, the United States, Mexico, and other industrialized countries. The UTEP PhD program is a multi-disciplinary program to prepare scientists and engineers to contribute to this vital field, with a range of skills linking materials, structure, properties, synthesis and processing, and performance. Students develop a research focus in a specialized area using one or more of these skills to study some class or classes of materials including metals, polymers, ceramics, semiconductors, superconductors, composites, and other materials systems.

Students in the program take a common core:

- Advanced Concepts in Materials Sciences and Engineering
- Materials Applications and Engineering
- Microchemical and Microstructural Characterization of Materials
- Contemporary Topics in Materials Science and Engineering

Admission to the PhD program in materials science and engineering with a BS or MS degree in a related field requires a minimum 3.0 GPA and a minimum TOEFL score of 550 for applicants from countries where English is not the principal language. GRE scores will also be considered for all applicants.

Degree requirements include a 20 hour core course sequence, 27 to 45 hours of specialization, 18 to 36 hours of research or directed study, and a minimum of six hours of dissertation. Materials research with a faculty mentor affords specialization which can serve as the basis for the dissertation. An acceptable dissertation must include a technical paper submitted to a refereed journal by the student as the senior author.

Students entering the program with a BS degree will normally take from 65 to 100 hours of graduate study for the PhD. Students entering with an MS degree would normally receive 30 hours of credit toward the PhD for their master's level work. There are no specific (non-English) language proficiency requirements.

Materials Science And Engineering (MASE)

3535 Thermodynamics of Materials (3-0)
The principles of chemical thermodynamics are applied to selected topics from all aspects of metallurgical processing. Subjects to be covered include solutions, phase equilibria, surface phenomena, free energy-composition diagrams, temperature-pressure diagrams, Eh-pH diagrams, and statistical estimation of thermodynamic functions.

3536 *Transport Processes in Materials Systems* (3-0)
The fundamental concepts of fluid flow, heat and mass transfer, and reaction kinetics are applied to selected topics from all areas of materials processing.

3537 Materials at High Temperatures (3-0)
Thermodynamic aspects of metal-oxygen reactions. Defects in inorganic (metal oxide) compounds and defect-dependent properties. Growth of oxide scales by lattice transport and development of stresses and strains. Oxidation in mixed reactants and hot corrosion and/or salt induced corrosion. Offered in alternate years. *Prerequisite*: MASE 3535 or equivalent, or instructor's approval.

3538 Mechanical Behavior of Materials (3-0)
The underlying principles of elastic and plastic deformation of metals, ceramics, polymers, and composite materials will be developed. Topics include dislocation theory, slip, twinning, microstructures, high and low temperature deformation behavior (tensile properties, creep, and fatigue) of crystalline and amorphous materials. Offered in alternate years. *Prerequisite*: MME 3203 or equivalent, or instructor's approval.

3539 Aqueous Corrosion (3-0)
Review of corrosion phenomena including electrochemical rate equations. Passive films and their role in corrosion. Electrochemical techniques. Pitting corrosion, stress corrosion cracking, corrosion fatigue and wear, and corrosion inhibition will be covered. Offered in alternate years. *Prerequisites*: MASE 3535, MASE 3536 or equivalent, or instructor's approval.

3540 Advanced Failure Analysis (3-0)
An advanced study of structural failure processes to include topics in fracture mechanics, fatigue, and environmental assisted cracking. Analysis of failures using metallographic, electron microscopy, and microanalytic techniques will be covered. Fracture of specific materials; steels, nonferrous alloys, composites, and nonmetallics will be included.

3541 Wear of Materials (3-0)
Definitions of wear and tribological properties of surfaces. Characteristics of surfaces in contact. Wear processes and mechanisms, grooving wear, sliding wear, rolling-sliding wear, and erosive wear applied to a wide range of materials and materials systems. The role of microstructures and properties of materials in wear phenomena will be developed. Offered in alternate years. *Prerequisites*: MME 3503 and MME 3504 or instructor's approval.

3542 Deformation Processing (3-0)
Deformation of crystalline materials and the role of structures and properties in controlling processing and performance. Applications of dislocation theory and theories of work hardening in metallic systems to cutting operations, metal forming and other material fabrication, extrusion, and machining and material removal. Nontraditional processing such as explosive forming, mechanical alloying, powder consolidation, and explosive welding and joining will also be included. Offered in alternate years. *Prerequisites*: MME 4501, MME 3503 or equivalent, or instructor's approval.

3543 Advanced Materials and Composites (3-0)
Properties and structures of composite materials and design of composite systems to yield desired combinations of properties.

Metal, ceramic, and polymer composite systems as well as high-performance alloy systems or microcomposites. Applications of materials and composite fundamentals to manufacturing and processing. Offered in alternate years. *Prerequisites*: MME 4501, MME 3503 or equivalent, or instructor's approval.

3544 Interfacial Phenomena in Materials Systems (3-0)
Thermodynamics of solid interfaces and interfacial equilibria. Interfacial free energy concepts and measurements. Structure of interfaces: solid surfaces, grain boundaries, phase boundaries, and system interfaces. Properties of interfaces and their role in materials performance. Offered in alternate years. *Prerequisites*: MME 4501, MME 3503, MME 3504 and MME 3505 or equivalent, or instructor's approval.

3545 Materials Performance at High Strain Rates (3-0)
Principles of high rate deformation. Stress/strain, strain state, strain rate fundamentals. Deformation induced microstructures and relationships to properties and performance. Shock-wave fundamentals, shock hardening and strengthening. Explosive forming, welding and material working fundamentals. Principles and applications of powdered materials and synthesis and sensitization of materials at high strain rates and high pressures. Offered in alternate years. *Prerequisite*: MASE 3538 or equivalent, or instructor's approval.

3564 Electromagnetic and Electro-Optical Phenomena (3-0)
Propagation of light in crystals. Electro-optic effects and their use in modulation of light. Introduction to nonlinear optics; harmonic generation.

3571 Semiconductor Devices (3-0)
Theory and application of advanced semiconductor devices including heterostructures, integrated circuits, semiconductor memories, charge transfer devices, thyristors, and microwave devices. *Prerequisite*: EE 3450 or equivalent.

3572 Advanced Optoelectronic Devices (3-0)
Theory and application of advanced photonic devices including injection lasers, photodiodes, infra-red detectors, solar cells, and electroluminescent displays. *Prerequisite*: MASE 3571 or equivalent.

3573 Electronic Materials (3-0)
Theory and application of advanced photonic devices including injection lasers, photodiodes, infra-red detectors, solar cells, and electroluminescent displays. *Prerequisite*: MASE 3571 or equivalent.

3589 High Speed GaAs Devices (3-0)
Advanced topics of contemporary interest in high speed GaAs devices. May be repeated for credit when topic varies. *Prerequisite*: Instructor's approval.

3590 Special Topics in the Chemistry of Materials (3-0)
Synthesis of polymers and advanced materials by condensation, addition, and other types of polymerization. Solution methods of characterization. Solid state properties and their structural basis. May be repeated for credit when topic varies. *Prerequisite*: Instructor's approval.

3591 Special Topics in the Physics of Materials (3-0)
Molecular and crystal structure of polymers and advanced materials. Brilloiun-zones, nature of cohesive energy, thermal behavior, electrical and thermal transport magnetism, super conductivity, and optical properties. May be repeated for credit when topic varies. *Prerequisite*: Instructor's approval.

1691 Individual Studies (0-0-1)
Independent studies in materials science and engineering.

2691 Individual Studies (0-0-2)
Independent studies in materials science and engineering.

2694 Graduate Research Projects (0-0-2)

3601 Materials Applications and Engineering (3-0)
A blend of applied materials processing and synthesis, examination of selected materials performance, and fundamental issues examining materials analysis and modeling. The fabrication of selected materials will be covered in the context of specific applications, i.e., semiconductors and device applications, artificially structured materials (MBE, CVD, etc.), solidification and rapid solidification technologies, vapor deposition and surface processing, solid-state forming processes, joining, consolidation, materials removal, and electrolytic processing. The performance issues will include atomistic studies, micromechanics of strength and fracture and degradation damage, failure analysis, and life prediction.

3602 Contemporary Topics in Materials Science and Engineering: Materials Chemistry (3-0)
Selected topics from the contemporary materials chemistry literature presented in a variable format which normally involves a combination of topical lectures and critical review of the literature (including individual and student team critiques involving oral and written presentations). Usually team taught by department faculty.

3603 Contemporary Topics in Materials Science and Engineering: Materials Physics (3-0)
Selected topics from the contemporary materials physics literature presented in a variable format which normally involves a combination of topical lectures and critical review of the literature (including individual and student team critiques involving oral and written presentations). Usually team taught by department faculty.

3604 Contemporary Topics in Materials Science and Engineering:Materials Engineering (3-0)
Selected topics from the contemporary materials engineering literature presented in a variable format which normally involves a combination of topical lectures and critical review of the literature (including individual and student team critiques involving oral and written presentations). Usually team taught by department faculty.

3690 Contemporary Topics in Materials Science and Engineering (3-0)
Selected topics from materials science and engineering. Course may be repeated twice for credit as topic varies.

3691 Individual Studies (0-0-3)
Independent studies in materials science and engineering.

3694 Graduate Research Projects (0-0-3)

3698 Dissertation (0-0-3)
Initial work on the dissertation.

3699 Dissertation (0-0-3)
Continuous enrollment required while work on the dissertation continues. *Prerequisite*: MASE 3698.

4600 Advanced Concepts in Materials Science and Engineering (4-0)
A blend of contemporary solid state physics and chemistry emphasizing structure and properties and including processing (synthesis) and performance, illustrated by various classes of materials: structural, electronic, magnetic, photonic, and superconducting. Fundamental issues and applications will include: crystal structure and crystal chemistry; disorder/order imperfections; phase equilibria, phase diagrams, phase transformation; reaction rates, kinetics, thermodynamics; microstructures in processing and performance; materials design/materials by design.

4602 Microchemical and Microstructural Characterization of Materials (3-0)
The structure and composition of materials can be investigated at a variety of levels utilizing a variety of analytical techniques. It is imperative that the principles and applications of a range of these techniques be presented to students examining classes of materials. Techniques which can allow microscopic and macroscopic characterization should be presented as well as techniques for bulk, surface, and related interfacial characterization. This course will focus on a variety of microscopy and spectrometry techniques—optical, electron, acoustic, and ion. As many microanalysis areas as possible will be demonstrated by having students visit facilities on the campus which constitute a materials characterization and analysis network. Principal microanalysis areas will include: x-ray diffraction, electron microscopy (scanning and transmission), electron probes, surface and near surface microanalysis, and optical and acoustic microscopy.

Graduate Faculty

KIMBERLY ABUNUWARA, Assistant Professor of Theatre Arts, 1993
B.A., Brigham Young University; M.F.A., Denver Center for the Performing Arts

WESTON AGOR, Professor of Political Science, 1982
B.A., St. Lawrence University; M.P.A., University of Michigan; Ph.D., University of Wisconsin

STEPHAN A. AHADI, Assistant Professor of Psychology, 1994
B.S. Baylor University; A.M., Ph.D., University of Illinois at Urbana-Champaign

PATRICIA ADKINS AINSA, Professor of Teacher Education, 1977
B.A., University of Texas at El Paso; M.S., Eastern New Mexico University; Ph.D., University of Colorado at Boulder

JON AMASTAE, Professor of Languages and Linguistics, 1980
B.A., University of New Mexico; Ph.D., University of Oregon

MARIA ALVAREZ AMAYA, R.N., Associate Professor in Nursing, 1979
B.S.N., University of Texas at El Paso; M.S., Texas Woman's University; Ph.D., New Mexico State University

CHARLES H. AMBLER, Associate Professor of History, 1984
B.A., Middlebury College; M.A., Ph.D., Yale University

ELIZABETH YOUNGBLOOD ANTHONY, Associate Professor of Geological Sciences, 1988
B.A., Carleton College; M.S., Ph.D., University of Arizona

EVAN HAYWOOD ANTONE, Associate Professor of English, 1967
B.A., M.A., The University of Texas at El Paso; Ph.D., The University of California at Los Angeles

PABLO ARENAZ, Associate Professor of Biological Sciences, 1984
B.S., M.S., University of Nevada at Reno; Ph.D., Washington State University

BERNARD ARENZ, Assistant Professor of Teacher Education, 1994
B.S., University of Minnesota; M.S., Ph.D., University of Wisconsin

ARMANDO ARMENGOL, Associate Professor of Languages and Linguistics, 1977
B.A., M.A., Ph.D., University of Illinois

ROY M. ARROWOOD, JR., Associate Professor in the Department of Metallurgical and Materials Engineering, 1989
B.S., North Carolina State University; M.S., Ph.D., University of California, Davis

SULEIMAN A. ASHUR, Assistant Professor in the Department of Civil Engineering, 1995
B.S., An-Najah National University, West Bank; M.S.E., University of Michigan; Ph.D., Arizona State University

MICHAEL EVAN AUSTIN, P.E., Professor of Electrical Engineering, 1963
B.S.E.E., M.S.E.E., Ph.D., University of Texas at Austin

DOROTHY BACA, Assistant Professor of Theatre Arts, 1993
B.F.A., University of New Mexico; M.F.A., University of California at Los Angeles

ALBERTO IAN BAGBY, JR., Associate Professor of Languages and Linguistics, 1973
A.B., Baylor University; M.A., University of Missouri; Ph.D., University of Kentucky

KENNETH KYLE BAILEY, Professor Emeritus of History, 1960
B.A., M.A., Ph.D., Vanderbilt University

STANLEY EUGENE BALL, Associate Professor of Teacher Education, 1964
B.S., University of Wyoming; M.S., University of Arizona; Ph.D., New Mexico State University

CHITTA BARAL, Assistant Professor of Computer Science, 1991
B. Tech., Indian Institute of Technology; M.S., Ph.D., University of Maryland at College Park

JOHN W. BARNES, Assistant Professor of Marketing, 1992
B.A., M.B.A, Ph.D., Arizona State University

EDUARDO BARRERA, Assistant Professor of Communication, 1992
B.A., Instituto Tecnológico y Superiores de Monterrey, Mexico, M.A., Ph.D., University of Texas at Austin

GUIDO ALAN BARRIENTOS, Associate Professor of Psychology, 1963
B.A., Universidad de San Carlos (Guatemala); M.A., Ph.D., University of Kansas

CHARLES RICHARD BATH, Professor of Political Science, 1966
B.A., University of Nevada; M.A., Ph.D., Tulane University

KIM BAUER, Assistant Professor of Art, 1989
B.F.A., Michigan State University; M.F.A., Eastern Michigan University

JAMES EDGAR BECVAR, Associate Professor of Chemistry, 1978
A.B., College of Wooster; Ph.D., University of Michigan

ANDREW BERNAT, Professor of Computer Science, 1982
B.S., Harvey Mudd College; M.A., Ph.D., University of Texas at Austin

SACHINDRANARAYAN BHADURI, Associate Professor in the Department of Mechanical Engineering, 1963
B.M.E., Jadavpur University; B.A., Calcutta University; M.S.M.E., State University of Iowa; M.E.S., Johns Hopkins University; Ph.D., Colorado State University

SOMNATH BHATTACHARYA, Assistant Professor of Accounting, 1994
B.A., Jadavpur University, Calcutta, India; M.B.A. Northern Arizona University; Ph.D., University of South Florida

DENNIS J. BIXLER-MARQUEZ, Professor of Teacher Education, 1978
B.A., M.Ed., University of Texas at El Paso; M.A., Ph.D., Stanford University

SALLY BLAKE, Assistant Professor of Teacher Education, 1994
B.S.E., M.S.E., Arkansas State University; Ph.D., University of Mississippi

ALBERTO BLANCO, Assistant Professor of Languages and Linguistics, 1993
B.A., Universidad Nacional Autónoma de México

EDWARD L. BLANSITT, Professor of Languages and Linguistics, 1967
B.H., Instituto Tecnológico de México; Ph.D., University of Texas at Austin

ROBERT TERRELL BLEDSOE, Professor of English, 1971
B.A., Harvard University; M.A., University of Kent at Canterbury; Ph.D., Princeton University

TOMMY J. BOLEY, Associate Professor of English, 1967
B.B.A., North Texas State University; M.A., Ph.D., University of Texas at Austin

JEFFERY T. BRANNON, Associate Professor of Economics, 1982
B.A., University of New Mexico; Ph.D., University of Alabama

SAMUEL JOHN BRIENT, JR., Professor of Physics, 1962
B.S., Ph.D., University of Texas at Austin

JOHN RICHARD BRISTOL, Professor of Biological Sciences, 1970
B.A., Cornell College; M.A., Ph.D., Kent State University

ARTURO BRONSON, Professor in the Department of Metallurgical and Materials Engineering and Geological Sciences, 1983
B.S.Met.E., M.S., University of Texas at El Paso; Ph.D., Ohio State University

GARY DONALD BROOKS, Associate Professor of Educational Leadership and Foundations, 1968
B.M.E., Millikin University; M.S.Ed., Ed.D., Indiana University

BARTHY BYRD, Associate Professor of Communication, 1984
B.A., M.A., New Mexico State University; Ph.D., University of New Mexico

SERGIO D. CABRERA, Associate Professor in the Department of Electrical Engineering, 1992
B.S., Massachusetts Institute of Technology; M.S., University of Arizona; Ph.D., Rice University

HOWARD CAMPBELL, Assistant Professor of Anthropology, 1991
B.A., University of Idaho; M.A., Ph.D., University of Wisconsin-Madison

HUGH F. CARDON, Professor of Music, 1963
B.M., M.A., University of Texas at El Paso; D.M.A., University of Oregon

DAVID CARMICHAEL, Assistant Professor of Anthropology, 1991
B.A., University of New Mexico; M.A., Ph.D., University of Illinois-Urbana

BENJAMIN CARRASCO-FLORES, Assistant Professor in the Department of Electrical Engineering, 1984
B.S.E.E., M.S.E.E., University of Texas at El Paso; Ph.D., Arizona State University

MARY HELEN CASTILLO, R.N., Associate Professor of Nursing, 1976
B.S.N., University of Texas System School of Nursing; M.S.N., University of Texas at Austin; Ph.D., New Mexico State University

ERNESTO CHÁVEZ, Assistant Professor of History, 1993
B.A., M.A., Ph.D., University of California at Los Angeles

RUSSELL R. CHIANELLI, Professor of Chemistry, 1996
B.S., Ph.D., Polytechnic Institute of Brooklyn

CAROL LEA CLARK, Assistant Professor of English, 1993
B.A., Rice University; M.Ed., University of Houston; M.A., California State University at San Bernadino; Ph.D., Texas Christian University

KENNETH FREDRICH CLARK, Professor of Geological Sciences, 1980
B.S., University of Durham; M.S., Ph.D., University of New Mexico

JAMES C. CLINGERMAYER, Assistant Professor of Political Science, 1994
B.A., M.A., Kansas University; Ph.D., Washington University

KENTON J. CLYMER, Professor of History, 1970
A.B., Grinnell College; M.A., Ph.D., University of Michigan

LAWRENCE DAVID COHN, Associate Professor of Psychology, 1989
B.A., Boston University; Ph.D., Washington University

DON C. COMBS, Associate Professor of Educational Psychology and Special Services, 1989
B.A., M.A., North Texas State University; Ed.D., New Mexico State University

DANIEL COOKE, Associate Professor of Computer Science, 1987
B.S., Sam Houston State University; M.S., Texas A&M University; Ph.D., University of Texas at Arlington

WILLIAM C. CORNELL, Associate Professor of Geological Sciences, 1971
B.S., M.S., University of Rhode Island; Ph.D., University of California at Los Angeles

JAMES H. CRAIG, JR., Professor of Physics, 1987
B.S., M.S., University of Wisconsin-Milwaukee; Ph.D., Washington State University

WILLIAM LIONEL CRAVER, JR., P.E., Professor of Mechanical Engineering, 1970
B.S.M.E., University of Texas at Austin; M.S.M.E., University of New Mexico; Ph.D., University of Oklahoma

STEPHEN L. CRITES, JR., Assistant Professor, 1994
B.S., M.A., Ph.D., Ohio State University

SIDDHARTHA DAS, Assistant Professor of Biological Sciences, 1993
B.S., M.S., Ph.D., University of Calcutta

HOWARD C. DAUDISTEL, Professor of Sociology and Criminal Justice, 1974
B.A., M.A., Ph.D., University of California at Santa Barbara

MICHAEL IAN DAVIS, Professor of Chemistry, 1968
B.Sc., Ph.D., University of London

EUGENE ALAN DEAN, Professor of Physics, 1958
B.S., University of Texas at El Paso; M.S., New Mexico State University; Ph.D., Texas A&M University

CONNIE DELLA-PIANA, Assistant Professor of Communication, 1992
B.A., University of Utah; M.A., University of Illinois; Ph.D., University of Utah

RICK DeMARINIS, Professor of English, 1988
B.A., M.A., University of Montana

DAVID DENNIS, Assistant Professor of Mathematical Sciences, 1995
B.A., University of Delaware; M.S., Ph.D., Cornell University

JORGE A. DESCAMPS, Associate Professor of Teacher Education, 1975
B.A., Noviciado San Estanislao, Havana, Cuba; B.A., M.A., University of Puerto Rico; Ed.D., University of Florida

SANDRA F. DEUTSCH, Professor of History, 1984
B.A., Beloit College; M.A., Ph.D., University of Florida

JAMES VINCENT DEVINE, Professor of Psychology, 1967
B.S., M.S., University of New Mexico; Ph.D., Kansas State University

JOHN ALEXANDER R. DICK, Associate Professor of English, 1971
A.B., Harvard University; M.A., Ph.D., Yale University

ISMAEL DIEPPA, Professor of Social Work, 1993
B.A., Sul Ross State University; M.S.W., Boston University; M.P.H., University of California at Berkeley; D.S.W., University of Southern California

CARL W. DIRK, Professor of Chemistry, 1990
B.A., Montclair State College; M.S., Ph.D., Northwestern University

DIANE I. DOSER, Associate Professor of Geological Sciences, 1986
B.S., Michigan Technological University; M.S., Ph.D., University of Utah

JACK ALLEN DOWDY, P.E., Professor of Mechanical Engineering, 1964
B.S.M.E., Southern Methodist University; M.S.M.E., Oklahoma State University; Ph.D., University of Texas at Austin

SHAHDAD DOWLATSHAHI, Associate Professor of Information and Decision Sciences, 1994
B.S., Iran; M.B.A., Emporia State University; M.S., University of Missouri at Columbia; Ph.D., University of Iowa

JEFF DRUCKER, Assistant Professor of Physics, 1994
B.A., University of California, Irvine; Ph.D., University of California, Santa Barbara

ARTHUR M. DUVAL, Assistant Professor of Mathematics, 1991
B.S., California Institute of Technology; Ph.D., Massachusetts Institute of Technology

PATRICIA EASON, CPA, Assistant Professor of Accounting, 1995
B.A., M.S., University of Texas at Arlington; Ph.D., Texas Tech University

JAMES E. EASTMAN, Associate Professor of Theatre Arts, 1980
B.A., University of Nevada at Reno; M.A., San Francisco State University; Ph.D., Bowling Green State University

CHARLES GAYLORD ELERICK, Professor of Languages and Linguistics, 1968
B.A., University of New Mexico; M.A., University of Texas at El Paso; Ph.D., University of Texas at Austin

BARBARA B. ELLIS, Associate Professor of Psychology, 1990
B.A., Hollins College; M.A., Ph.D., University of South Florida

JOANNE TONTZ ELLZEY, Associate Professor of Biological Sciences, 1969
B.A., Randolph-Macon Woman's College; M.A., University of North Carolina; Ph.D., University of Texas at Austin

MARION LAWRENCE ELLZEY, JR., Professor of Chemistry, 1968
B.A., Rice University; Ph.D., University of Texas at Austin

ROBERT MORLEY ESCH, Associate Professor of English, 1962
B.A., Southern Methodist University; M.A., Ph.D., University of Wisconsin

RALPH W. EWTON, JR., Associate Professor of Languages and Linguistics, 1966
B.A., M.A., Ph.D., Rice University

JULIA A. EYER, Assistant Professor of Speech-Language Pathology, 1983
B.A., Oklahoma Baptist University; M.A., University of Kansas; Ph.D., University of Texas, Austin

CHARLES FENSCH, Professor of Art, 1982
B.S., Kent State University; M.A.E., Wayne State University; M.A., University of Michigan

CARLOS MIGUEL FERREGUT, Associate Professor in the Department of Civil Engineering, 1990
B.S., National Polytechnic Institute of Mexico; M.Eng., National Autonomous University of Mexico; Ph.D., University of Waterloo, Canada

WALTER W. FISHER, P.E., Professor of Metallurgical and Materials Engineering, 1978
B.S.Met.E., University of Utah; M.S., Ph.D., New Mexico Institute of Mining and Technology

LESLIE OWEN FOGED, Associate Professor of Mathematics, 1979
B.A., Midland Lutheran College; Ph.D., Washington University (St. Louis)

RICHARD R. FORD, Associate Professor of Languages and Linguistics, 1975
B.A., Northwestern University; M.A., New York University; Ph.D., University of Chicago

MARCIA TAYLOR FOUNTAIN, Professor of Music, 1970
B.M., University of North Carolina at Greensboro; M.M., Northwestern University; D.M.A., University of Iowa

CHARLES EDWARD FREEMAN, JR., Professor of Biological Sciences, 1968
B.S., Abilene Christian College; M.S., Ph.D., New Mexico State University

WAYNE EDISON FULLER, Professor Emeritus of History, 1955
B.A., University of Colorado; M.A., University of Denver; Ph.D., University of California at Berkeley

FERNANDO N. GARCÍA, Professor of Languages and Linguistics, 1974
B.A., Roger Bacon College; M.A., University of Texas at El Paso, Ph.D., University of New Mexico

JORGE GARDEA-TORRESDEY, Associate Professor of Chemistry, 1994
B.S., Autonomus University of Chihuahua; M.S., Ph.D., New Mexico State University

ANN GATES, Assistant Professor of Computer Science, 1988
B.S., M.S., University of Texas at El Paso; Ph.D., New Mexico State University

MICHAEL GELFOND, Professor of Computer Science, 1980
M.S., Leningrad University; Ph.D., Steklow Mathematics Institute of Academy of Science of the U.S.S.R.

LEOPOLDO A. GEMOETS, Associate Professor of Information and Decision Science, 1984
B.S., M.S., University of Texas at El Paso; Ph.D., Santa Lucia Health Sciences University

GLENN ALLEN GIBSON, Professor in the Department of Electrical Engineering, 1966
B.S.E.E., University of Kansas; M.S.E.E., M.A., Ph.D., Arizona State University

MIMI REISEL GLADSTEIN, Professor of English and Theatre Arts, 1968
B.A., M.A., University of Texas at El Paso; Ph.D., University of New Mexico

JUDITH PAGE GOGGIN, Professor of Psychology, 1969
B.A., Bryn Mawr; Ph.D., University of California at Berkeley

PETER GOLDING, CPE, Associate Professor of Mechanical Engineering, 1987
B.S., Ph.D., Monash University, Australia

PAUL GOLDSTEIN, Professor of Biological Sciences, 1984
B.S., State University of New York at Albany; M.S., Ohio University; Ph.D., York University

L. ANTONIO GONZÁLEZ, Assistant Professor of Teacher Education, 1987
B.A., M.A., New Mexico Highlands University; Ph.D., University of Illinois Urbana-Champaign

ROBERTO CORTEZ GONZÁLEZ, Associate Professor of Educational Psychology and Special Services, 1995
B.S., Northwestern University; M.A., New Mexico State University; Ph.D., Stanford University

GRANT TODD GOODALL, Associate Professor of Languages and Linguistics, 1984
B.A., University of California at Los Angeles; M.A., Ph.D., University of California at San Diego

PHILIP CHARLES GOODELL, Associate Professor of Geological Sciences, 1975
B.S., Yale University; M.S., Ph.D., Harvard University

MARY GOWAN, Assistant Professor of Management, 1992
B.A., Southwest Baptist College; M.A., Appalachian State University; Ph.D., University of Georgia

JOSEPH BENJAMIN GRAVES, Professor of Political Science and Criminal Justice, 1964
B.A., J.D., Vanderbilt University; M.P.A., Harvard University

GAVIN GEORGE GREGORY, Associate Professor of Mathematics, 1976
B.S., Rice University; M.S., Southern Methodist University; Ph.D., Florida State University

JOE A. GUTHRIE, Professor of Mathematics, 1974
B.A., University of Texas at Austin; M.A., Ph.D., Texas Christian University

DAVID A. HACKETT, Associate Professor of History, 1971
B.A., Earlham College; M.A., Ph.D., University of Wisconsin

JOHN HERBERT HADDOX, Professor of Philosophy, 1958
B.A., M.A., Ph.D., University of Notre Dame

JOHN HADJIMARCOU, Assistant Professor of Marketing, 1994
B.S., M.B.A., West Virginia University; Ph.D., Kent State University

DAVID LYNN HALL, Professor of Philosophy, 1969
B.A., University of Texas at El Paso; B.D., Chicago Theological Seminary; Ph.D., Yale University

HELEN HAMMOND, Assistant Professor of Educational Psychology & Support Services, 1995
B.S., University of Idaho; M.A., University of Northern Colorado; Ph.D., University of New Mexico

ARTHUR HORNE HARRIS, Professor of Biological Sciences and Geological Sciences, 1965
B.S., M.A., Ph.D., University of New Mexico

EDWARD HEATH, Assistant Professor of Kinesiology & Sports Studies, 1993
B.S., M.S., University of Utah; Ph.D., Oregon State University

HERBERT K. HEGER, Professor of Educational Leadership and Foundations, 1982
B.S.Ed., M.Ed., Miami University; Ph.D., Ohio State University

ANTHONY F. HERBST, Professor of Finance, 1987
B.S., M.B.A., Wayne State University; Ph.D., Purdue University

FRANCES HERNÁNDEZ, Professor of English, 1967
B.S., M.S., Purdue University; M.A., Ph.D., University of New Mexico

NORMA GONZÁLEZ HERNÁNDEZ, Professor of Teacher Education, 1969
B.A., University of Texas at El Paso; M.A., Ph.D., University of Texas at Austin

WILLIAM C. HERNDON, Professor of Chemistry, 1972
B.S., University of Texas at El Paso; Ph.D., Rice University

JUAN MANUEL HERRERA, Professor of Mechanical Engineering, 1977
B.S.M.E., B.S.Met.E., University of Texas at El Paso; Ph.D., University of Houston

JERRY MARTIN HOFFER, Professor of Geological Sciences, 1965
B.A., M.A., State University of Iowa; Ph.D., Washington State University

SHARRON R. HOFFMANS, CPA, Assistant Professor of Accounting, 1974
B.A., University of Kansas; M.B.A., University of Texas at El Paso; Ph.D., Oklahoma State University

JAMES H. HOLCOMB, JR., Associate Professor of Economics, 1985
B.B.A., University of Texas at El Paso; M.A., Texas Tech University; Ph.D., Texas A&M University

HARMON M. HOSCH, Professor of Psychology and Criminal Justice, 1975
B.A., University of Northern Iowa; M.A., Pepperdine University; Ph.D., New School for Social Research

CHERYL ANN HOWARD, Associate Professor of Sociology, 1989
B.A., Ph.D., University of New Mexico

FRANK HOY, Professor of Management, 1991
B.B.A., University of Texas at El Paso; M.B.A., North Texas State University; Ph.D., Texas A&M University

RONALD A. HUFSTADER, Professor of Music, 1976
B.M., East Carolina University; M.M., University of North Carolina at Greensboro; M.F.A., Ph.D., University of Iowa

JERRY DON HUNTER, Associate Professor of Biological Sciences, 1966
M.A., Hardin-Simmons University; M.S., Ph.D., Texas A&M University

SANDRA HURLEY, Assistant Professor of Teacher Education, 1994
B.LS., M.A., Ph.D., New Mexico State University

SANTIAGO IBARRECHE, Associate Professor of Management, 1983
B.B.A., Universidad Nacional Autonoma de Mexico; M.B.A., Instituto Tecnologico y de Estudios Superiores de Monterrey; D.B.A., University of Colorado

LAWRENCE C. INGALLS, Associate Professor of Educational Psychology and Special Services, 1994
B.S., University of Idaho; M.A., University of Northern Colorado; Ph.D., University of New Mexico

HENRY T. INGLE, Professor of Communication, 1994
B.A., Texas Western College; M.S., Newhouse School of Communication, Syracuse University; Ph.D., Stanford University

LOUIS IRWIN, Professor of Biological Sciences, 1991
B.A., Texas Tech University; Ph.D., University of Kansas

ELENA IZQUIERDO, Assistant Professor of Teacher Education, 1995
B.A., M.A., University of Texas at El Paso; Ph.D., Georgetown University

CARL THOMAS JACKSON, Professor of History, 1962
A.B., University of New Mexico; Ph.D., University of California at Los Angeles

DILMUS DELANO JAMES, Professor of Economics, 1958
B.A., M.A., University of Texas at Austin; Ph.D., Michigan State University

LAWRENCE JOSEPH JOHNSON, Associate Professor of English, 1972
B.A., University of Wisconsin; M.A., Ph.D., Johns Hopkins University

STEVE A. JOHNSON, Associate Professor of Finance, 1987
B.S., Troy State University; M.A., Ph.D., University of Alabama

WILLIAM CARROLL JOHNSON, P.E., Associate Professor of Industrial Engineering, 1977
B.S., Baylor University; M.E., Ph.D., Texas A&M University

ELIZABETH JONES, Associate Professor of Art, 1990
B.A., Randolph-Macon Woman's College; M.A., New York University; Ph.D., University of New Mexico

LARRY P. JONES, Professor of Biological Sciences, 1972
B.A., Augustana College; M.S., Iowa State University; Ph.D., Oregon State University

ROBERT JONES, Assistant Professor of Communication, 1990
B.S., University of Kansas; M.S., University of Oregon; Ph.D., Ohio University

FEROZA JUSSAWALLA-DASENBROCK, Associate Professor of English, 1980
B.A., Osmania University College for Women; M.A., Ph.D., University of Utah

WILLIAM DANIEL KAIGH, JR., Professor of Mathematics, 1974
B.S., M.A., Ph.D., University of Arizona

YASUHIDE KAWASHIMA, Professor of History, 1966
LL.B, LL.M., Keio University; B.A., M.A., Ph.D., University of California at Santa Barbara

G. RANDY KELLER, JR., Professor of Geological Sciences, 1976
B.S., M.S., Ph.D., Texas Tech University

MICHAEL P. KELLY, Assistant Professor of Health Sciences, 1993
B.A., Sam Houston; M.ED, Ph.D., Texas A&M

MOHAMED AMINE KHAMSI, Associate Professor of Mathematics, 1989
Dip.d'Ing., Ecole Polytechnique (Paris); Dip. de Doctorate, Universite Paris VI

DANIEL ALLAN KIES, Associate Professor of Teacher Education, 1972
B.S., University of Wisconsin, M.A., Arizona State University; Ed.D., University of Arizona

JOE LARS KLINGSTEDT, Professor of Teacher Education, 1970
B.M.Ed., University of Oklahoma; M.M.Ed., Ed.D., Texas Tech University

HELMUT KNAUST, Assistant Professor of Mathematics, 1991
B.S., University of Bielefeld, Germany; M.S., University of Bonn, Germany; Ph.D., University of Texas at Austin

REX A. KOONTZ, Assistant Professor of Art, 1995
B.A., American College in Paris; M.A., Ph.D., University of Texas at Austin

VLADISLAV Y. KREINOVICH, Associate Professor of Computer Science, 1990
M.S., Leningrad University; Ph.D., Institute of Mathematics, Novosibirsk, USSR

ZBIGNIEW ANTHONY KRUSZEWSKI, Professor of Political Science, 1968
Baccalaureate, Lycee, Cawthorne (England); Ph.D., University of Chicago

LETICIA LANTICAN, R.N., Associate Professor in Nursing, 1986
B.S.N., University of the Philippines; M.S., University of California, San Francisco; M.A., Ph.D., University of the Philippines

JESUSA B. LARA, R.N., Associate Professor in Nursing, 1988
B.S.N., University of the Philippines; M.A., New York University; Ed.D., St. Louis University, Philippines

PATRICIA ANN LAWRENCE, Assistant Professor of Communication, 1990
B.A., M.A., Ph.D., University of Kentucky

BRUCE LAWSON, Associate Professor of English, 1988
B.A., Bethel College; M.A., San Diego State University; Ph.D., University of Southern California

MICHAEL WILFRIED LEHKER, Assistant Professor of Biological Sciences, 1993
B.S., M.S., University of Texas at El Paso; Ph.D., University of Texas Health Science Center, San Antonio

DAVID VONDENBERG LEMONE, Professor of Geological Sciences, 1964
B.S., New Mexico Institute of Mining and Technology; M.S., University of Arizona; Ph.D., Michigan State University

CARL S. LIEB, Associate Professor of Biological Sciences, 1981
B.S., M.S., Texas A&M University; Ph.D., University of California at Los Angeles

YU-CHENG LIU, Professor in the Department of Electrical Engineering, 1971
B.S.E., National Taiwan University; M.S., Ph.D., Northwestern University

SANDRA R. LLOYD, Associate Professor of Educational Psychology and Special Services, 1990
B.A., Bethany College; M.Div., Union Theological Seminary; M.Ed., Kent State University; Ph.D., University of Illinois Urbana-Champaign

WINSTON DALE LLOYD, Associate Professor of Chemistry, 1962
B.S., Florida State University; Ph.D., University of Washington

LUC LONGPRE, Associate Professor of Computer Science, 1994
B.S., M.S., Montreal University; M.S., Ph.D., Cornell University

JORGE ALBERTO LÓPEZ, Associate Professor of Physics, 1990
B.S., M.S., University of Texas at El Paso; Ph.D., Texas A&M University

TRINIDAD LÓPEZ, Associate Professor of Art, 1990
B.A., M.A., Northern Arizona University; Ph.D., University of New Mexico

BRUCE LOUDEN, Assistant Professor of Languages and Linguistics, 1991
B.A., University of California at Santa Cruz; M.A., San Francisco State University; Ph.D., University of California at Berkeley

MARY ANN LUBNO, Associate Professor of Nursing, 1994
B.S.N., Virginia Commonwealth University; M.Ed., Ph.D., Texas A&M

G. WILLIAM LUCKER, Associate Professor of Psychology, 1981
A.B., University of California at Berkeley; Ph.D., University of Texas at Austin

GREGORY B. LUSH, Assistant Professor in the Department of Electrical Engineering, 1993
B.S.E.E., University of Notre Dame; M.S.E.E., Ph.D., Purdue University

WILLIAM P. MACKAY, Professor of Biological Sciences, 1990
B.A., M.A., California State University, Fullerton; Ph.D., University of California at Riverside

MO ADAM MAHMOOD, Professor of Information and Decision Sciences, 1987
B.S., University of California; M.B.A., California State University; Ph.D., Texas Tech University

ROY S. MALPASS, Professor of Psychology and Criminal Justice, 1992
B.S., Union College; M.A., New School for Social Research; Ph.D., Syracuse University

KATE MANGELSDORF, Assistant Professor of English, 1990
B.A., Arizona State University; M.A., Ph.D., University of Arizona

JOAN HELEN MANLEY, Professor of Languages and Linguistics, 1968
B.A., University College of London; Ph.D., University of Texas at Austin

GARY J. MANN, CPA, Associate Professor of Accounting, 1986
B.B.A., M.B.A., University of Texas at El Paso; Ph.D., Texas Tech University

SAMIR H. MANOLI, Associate Professor in the Department of Electrical Engineering, 1980
B.S., University of Cairo; M.S., Ph.D., Achen University

LOIS A. MARCHINO, Associate Professor of English, 1974
B.A., M.A., Purdue University; Ph.D., University of New Mexico

CHARLES H. MARTIN, Assistant Professor of History, 1983
B.A., Texas A&I University; M.A., Ph.D., Tulane University

CHERYL E. MARTIN, Professor of History, 1978
B.S.F.S., Georgetown University School of Foreign Service; M.A., Ph.D., Tulane University

WILLIAM B. MARTIN, Associate Professor of Information and Decision Sciences, 1975
B.S., Mississippi State University; M.B.A., Ph.D., North Texas State University

PETER J. MAUD, Professor of Kinesiology and Sports Studies, 1992
B.S., University of Oregon; M.S., Ph.D., University of New Mexico

FRANK A. MAYNE, CPA, Assistant Professor of Accounting, 1978
B.S., M.B.A., Ph.D., University of Arizona

JOHN C. MCCLURE, JR., Associate Professor in the Department of Metallurgical and Materials Engineering, 1985
B.S., University of Illinois; M.S., Ph.D., Syracuse University

THOMAS J. MCLEAN, P.E., Professor of Industrial Engineering, 1976
B.S., U.S. Naval Academy; M.B.A., M.S., U.S. Air Force Institute of Technology; Ph.D., Arizona State University

THERESA MELÉNDEZ-HAYES, Associate Professor of English, 1974
B.A., University of Texas at El Paso; M.A., San Francisco State College; Ph.D., University of California at San Diego

ARTIE LOU METCALF, Professor Emeritus of Biological Sciences, 1962
B.S., Kansas State University; M.A., Ph.D., University of Kansas

GEORGE DOUGLAS MEYERS, Associate Professor of English, 1982
B.S., New York University; M.A., Columbia University; Ed.D., University of Maryland

SCOTT MICHAELSEN, Assistant Professor of English, 1992
B.A., Harvard University; M.A., Northwestern University, Ph.D., State University of New York at Buffalo

DONALD A. MICHIE, Professor of Marketing, 1984
B.B.A., Ph.D., University of Wisconsin-Madison; M.B.A., Marquette University.

GRACE FREDERICK MIDDLETON, Professor of Speech-Language Pathology, 1970
B.S., Oklahoma State University; M.C.D., Oklahoma University; Ed.D., Texas Tech University

KATE C. MILLER, Assistant Professor of Geological Sciences, 1991
A.B., Princeton University; M.S., Ph.D., Stanford University

JAMES L. MILSON, Professor of Teacher Education, 1970
B.S., M.Ed., Texas Wesleyan College; Ph.D., The University of Texas at Austin

MARIO M. MONTALBETTI, Assistant Professor of Languages and Linguistics, 1991
B.A., Pontificia Universidad Católica del Perú; Ph.D., Massachusetts Institute of Technology

ELIZABETH MONTES, Assistant Professor of Languages and Linguistics, 1993
B.A., Universidad Pedagógica Nacional, Bogotá, Colombia; M.A., Ph.D., University of Kansas

GAIL LINDA MORTIMER, Professor of English, 1976
B.A., University of Tulsa; Ph.D., State University of New York at Buffalo

PANAGIS G. MOSCHOPOULOS, Associate Professor of Mathematics, 1989
B.A., University of Athens (Greece); M.Sc., McGill University; M.A., Ph.D., University of Rochester

DONALD E. MOSS, Professor of Psychology, 1975
B.S., M.S., Ph.D., Colorado State University.

RICHARD MROZ, JR., Assistant Professor of Clinical Laboratory Sciences, 1992
B.S., University of Maryland, College Park; M.S.M.T., Catholic University of America; D.A., Catholic University of America

LAWRENCE E. MURR, Professor of Metallurgical and Materials Engineering, 1989
B.Sc., Albright College; B.S., M.S., Ph.D., Pennsylvania State University

JOHN NASH, Assistant Professor of Educational Leadership and Foundations, 1992
B.A., University of California; M.Ed., Northeast Louisiana University; Ph.D., University of Wisconsin

SOHEIL NAZARIAN, P.E., Associate Professor of Civil Engineering, 1987
B.S., University of Tehran, Iran; M.S., Tufts University; Ph.D., University of Texas at Austin

HOWARD DUNCAN NEIGHBOR, Professor of Political Science, 1968
B.S., M.S., Kansas State University; Ph.D., University of Kansas

DAVID NEMIR, P.E., Associate Professor of Electrical Engineering, 1987
B.S., University of Texas at Austin; M.S., Gannon University; Ph.D., Purdue University

JAMES EUGENE NYMANN, Professor of Mathematics, 1967
B.A., University of Northern Iowa; M.S., Ph.D., University of Arizona

HONG-SIOE OEY, P.E., Associate Professor of Civil Engineering, 1967
B.C.E., Bandung Institute of Technology; M.C.E., Ph.D., University of Oklahoma

GREGORY CHARLES OHLMACHER, Assistant Professor of Geological Sciences, 1993
B.S., University of Maryland; Ph.D., Purdue University

JANET S. OMUNDSON, CPA, Associate Professor of Accounting, 1984
B.A., M.S., *University of Mississippi*

GARLAND O'QUINN, Associate Professor of Kinesiology and Sports Studies, 1992
B.S., United States Military Academy; M.S., Southern Illinois University; Ph.D., Pennsylvania State University.

ROBERTO OSEGUEDA, Associate Professor in the Department of Civil Engineering, 1987
B.S., M.S., Ph.D., Texas A&M University

JOSEPH PACKALES, Associate Professor and composer in Residence in Music, 1984
B.M., Eastman School of Music; M.M., Cleveland State University; Ph.D., Kent State University

ARTURO PACHECO, Professor of Educational Leadership and Foundations, 1991
B.A., San Jose State University; M.A., San Francisco State University; Ph.D., Stanford University

KEITH HOWARD PANNELL, Professor of Chemistry, 1970
B.Sc., M.Sc., University College, Durham University; Ph.D., University of Toronto

W. RAY PARISH, Professor of Art, 1984
B.F.A., University of Mississippi; M.F.A., Otis Art Institute

JULIE PATTEN, Associate Professor of Health Sciences, 1988
B.S., Ph.D., Iowa State University

ARRYL STANTON PAUL, JR., Professor of Music, 1966
B.M., Drury College; M.M., Wichita University; D.M.A., University of Arizona

JOHN B. PEPER, Professor of Educational Leadership and Foundations, 1990
B.A., Baylor University; M.Ed., Ed.D., Temple University

ARTURO P. PÉREZ, Professor of Languages and Linguistics, 1970
B.A., Our Lady of the Lake College; Ph.D., University of Oklahoma

EMMA M. PÉREZ, Assistant Professor of History, 1989
B.A., M.A., Ph.D., University of California, Los Angeles

JOSEPH ANTHONY PEROZZI, Professor of Speech-Language Pathology, 1971
B.A., University of Nevada; M.A., Ph.D., University of Washington

ANNE PERRIGO, Assistant Professor of Art, 1995
B.F.A., University of Washington; M.F.A., University of California, Davis

JOHN A. PETERSON, Assistant Professor of Anthropology, 1991
B.A., Antioch College; M.A., Ph.D., University of Texas at Austin

ROBERT LOUIS PETERSON, Associate Professor of Political Science, 1967
B.A., M.A., University of Iowa; Ph.D., Pennsylvania State University

KURT PFLUGHOEFT, Assistant Professor of Information and Decision Sciences, 1993
B.S., M.S., Ph.D., University of Wisconsin, Milwaukee

MIGUEL PICORNELL-DARDER, Associate Professor in the Department of Civil Engineering, 1985
B.S., Escuela de Ingenieros de Caminos (Spain); M.E., Ph.D., Texas A&M University

JOSEPH HENRY PIERLUISSI, P.E., *Professor of Electrical* Engineering, 1969
B.S.E.E., University of Puerto Rico; M.S.E.E., Cornell University; Ph.D., Texas A&M University

NICHOLAS E. PINGITORE, Professor of Geological Sciences, 1977
A.B., *Columbia College*; Sc.M., Ph.D., Brown University

KEITH POLETTE, Assistant Professor of English, 1995
B.A, Central Methodist College; M.A., Idaho State University; Ph.D., St. Louis University

EVELYN J. POSEY, Assistant Professor of English, 1990
B.A., M.A., University of Texas at El Paso; Ph.D., New Mexico State University

MAUREEN AUDREY POTTS, Associate Professor of English, 1970
B.A., M.A., M.Phil., University of Toronto; Ph.D., Texas Woman's University

J. GERARD POWER, Assistant Professor of Communication, 1994
B.A., Dublin City University; M.A., California State University at Sacramento; Ph.D., Annenberg School of Communication, University of Southern California

THOMAS JOSEPH PRICE, Associate Professor of Political Science, 1970
B.S., *College of Charleston*; M.A., *University of Chicago*; Ph.D., Florida State University

KARL B. PUTNAM, CPA, Associate Professor of Accounting, 1986
B.B.A., M.P.A., University of Texas at Austin; Ph.D., Oklahoma State University

JAMES QUINNAN, Associate Professor of Art, 1988
B.F.A., Pennsylvania State University; M.F.A., Carnegie Mellon University

ROLANDO QUINTANA, Assistant Professor of Mechanical and Industrial Engineering, 1992
B.S., M.S., University of Texas at El Paso; Ph.D., New Mexico State University

EPPIE D. RAEL, Professor of Biological Sciences, 1975
B.S., University of Albuquerque; M.S., New Mexico Highlands University; Ph.D., University of Arizona

LUIS ARTURO RAMOS, *Assistant Professor of Languages and* Linguistics, 1992
Licenciado en Letras Españolas, Universidad Veracruzana

RAUL RAMOS, Assistant Professor of Theatre Arts, 1993
B.A., M.F.A., University of California at San Diego

RAMON RAVELO, Assistant Professor of Physics, 1992
B.A., University of California at Santa Barbara; M.S., Ph.D., Boston University

KEITH ALLEN REDETZKE, Assistant Professor of Biological Sciences, 1973
B.S., M.S., University of Idaho; Ph.D., Colorado State University

BELINDA REYES, Assistant Professor of Speech-Language Pathology, 1992
B.S., Baylor University; M.S., Ph.D., University of Texas at Dallas

AUDREE J. REYNOLDS, R.N., Associate Professor of Nursing, 1980
B.S.N., M.S.N., Ohio State University; Ph.D., New Mexico State University

BRIAN REYNOLDS, Associate Professor of Speech-Language Pathology, 1989
B.S., M.S., Brigham Young University; Ph.D., Purdue University

SAMUEL C. RICCILLO, Associate Professor of Communication, 1989
B.A., University of Southern Colorado; Ph.D., University of Denver

ROBERT W. RIGHTER, Professor of History, 1988
B.A., Willamette University; M.A., San Jose State University; Ph.D., University of California at Santa Barbara

SUSAN J. RIPPBERGER, Assistant Professor of Educational Leadership & Foundations, 1995
B.A., University of California, Los Angeles; M.A., University of California, Santa Barbara; Ph.D., University of Pittsburgh

STEPHEN RITER, P.E., Professor of Electrical Engineering, 1980
B.A., B.S.E.E., Rice University; M.S., Ph.D., University of Houston

JULIUS RIVERA, Professor Emeritus of Sociology and Anthropology, 1973
M.A., University of Detroit; Ph.D., Michigan State University

MARY CLARE ROBBINS, Assistant Professor in the Department of Mechanical and Industrial Engineering, 1991
B.S., Duke University; B.S., M.M.E., Ph.D., North Carolina State University

PETER ROBINSON, Associate Professor of Philosophy, 1970
B.A., University of Massachusetts; M.A., Ph.D., Boston University

GREGORY G. ROCHA, Assistant Professor of Political Science, 1990
B.A., University of Iowa; M.A., University of Texas at El Paso; Ph.D., University of Texas at Austin

LARRY RODERICK, Assistant Professor of Industrial Engineering, 1981
B.S., M.S., Texas Tech University; Ph.D., Texas A&M University

SALVADOR FERNANDO RODRÍGUEZ, Assistant Professor of Sociology and Criminal Justice, 1990
B.S., M.A., Ph.D., University of Texas at Austin

JAVIER ROJO, Professor of Mathematics, 1972
B.S., M.S., University of Texas at El Paso; Ph.D., University of California at Berkeley

DAVID E. ROSS, Associate Professor of Music, 1981
B.M., Oberlin College Conservatory; M.M., D.M.A., University of Iowa

TIMOTHY PETER ROTH, Professor of Economics, 1970
B.S., Albright College; M.A., State University of New York at Binghamton; Ph.D., Texas A&M University

DAVID BERNARD ROZENDAL, P.E., Associate Professor of Civil Engineering, 1960
B.S., South Dakota School of Mines and Technology; M.S., University of Minnesota; Ph.D., Purdue University

DWIGHT PRITCHETT RUSSELL, Associate Professor of Physics, 1989
B.S., Western Kentucky University; M.S., Ph.D., Vanderbilt University

ELLEN RYAN, Assistant Professor of Social Work, 1994
B.S., M.S.W., University of Missouri; Ph.D., Southern Illinois University

BENJAMIN ALIRE SÁENZ, Assistant Professor of English, 1992
B.A., St. Thomas Seminary; M.A., University of Louvain, Belgium; M.A., University of Texas at El Paso

JAMES M. SALVADOR, Assistant Professor of Chemistry, 1992
B.S., University of Texas at El Paso; Ph.D., New Mexico State University

WILLIAM B. SANDERS, Professor of Criminal Justice and Sociology, 1992
B.A., Ph.D, University of California Santa Barbara; M.A., San Francisco State University;

JULIE P. SANFORD, Associate Professor of Educational Leadership and Foundations, 1992
B.S., M.A., Texas A&I University; Ph.D., University of Texas at Austin

ELLERY STOWELL SCHALK, Professor of History, 1970
B.A., Wesleyan University; M.A., Ph.D., University of California at Berkeley

JENNIFER SCHALLER-AYERS, Assistant Professor of Nursing, 1992
B.S.N., San Jose State University; M.S.N, University of Arkansas; Ph.D., University of Oregon

DAVID ARTHUR SCHAUER, Associate Professor of Economics and Finance, 1975
B.S., Jamestown College; M.A., Ph.D., University of Notre Dame

THOMAS H. SCHMID, Assistant Professor of English, 1990
B.S., Utah State University; M.A., Ph.D., University of Utah

L. LEE SCHMIDT, JR., Professor of Accounting, 1992
B.S.B.A. University of Arkansas; M.B.A., Texas Tech University; Ph.D., University of Arkansas

ROBERT HOWARD SCHMIDT, JR., Professor of Geological Sciences, 1969
B.S., M.S., Oregon State University; Ph.D., University of California at Los Angeles

SAMUEL SCHMIDT, Associate Professor of Political Science, 1991
B.A., Ph.D., National Autonomous University of Mexico (UNAM); M.A., Hebrew University of Jerusalem;

KIMBERLY T. SCHNEIDER, Assistant Professor of Psychology, 1995
B.A., Illinois Wesleyan University; M.A., Ph.D., University of Illinois at Urbana-Champaign

DARRELL CHARLES SCHRODER, Professor of Electrical Engineering, 1971
B.S., M.S., Ph.D., Iowa State University

EUGENE FRANCIS SCHUSTER, Professor of Mathematics, 1970
B.A., St. John's University; M.A., Ph.D., University of Arizona

MILAGROS M. SEDA, Associate Professor of Teacher Education, 1985
B.S.Ed., University of Hawaii; M.Ed., University of Texas at El Paso; Ed.D., University of Houston

AARON LEE SEGAL, Professor of Political Science, 1981
B.A., Occidental College; B.Phil., Oxford University; Ph.D., University of California at Berkeley

SALLY M. SEGAL, Associate Professor of Art, 1967
B.F.A., M.F.A., Wichita State University

GRANVILLE SEWELL, Associate Professor of Mathematics, 1983
B.S., Harding College; M.S., University of Texas at Austin; Ph.D., Purdue University

MEHDI SHADARAM, Associate Professor of Electrical Engineering, 1984
B.S.E.E., University of Science and Technology, Tehran; M.S., Ph.D., University of Oklahoma

JOHN MCCARTY SHARP, Professor Emeritus of Languages and Linguistics, 1949
B.A., Westminster College; M.A., Ph.D., University of Chicago

JOHN S. SHAW, III, Assistant Professor of Psychology and Criminal Justice, 1994
B.A. Vanderbilt University; J.D., Stanford Law School; M.A., Ph.D., University of California, Los Angeles

EUN-JOO CHRISTINE SHIN, Assistant Professor of Teacher Education, 1989
B.A., M.A.,Ewha Womans University, Seoul, Korea; Ph.D., University of Texas at Austin

KENNETH BRUCE SHOVER, Professor Emeritus of History, 1962
B.A., M.A., University of Missouri at Kansas City; Ph.D., University of California at Berkeley

VIJAY P. SINGH, Professor of Electrical Engineering, 1983
B.T.E.E., Indian Institute of Technology; M.S., Ph.D., University of Minnesota

BRENDA A. SMITH, Associate Professor of Health Sciences, 1987
B.S., M.A., Austin Peay State; Ph.D., Ohio State University

EARL L. SMITH, Assistant Professor of Chemistry, 1995
B.Sc., University of Alberta; Ph.D., Iowa State University

JACK SMITH, P.E., Professor of Electrical Engineering, 1989
B.S., M.S., Ph.D., University of Arizona

MARGARET SMITH, Associate Professor of English, 1987
B.A., M.A., State University of New York, Fredonia; Ph.D., Rensselaer Polytechnic Institute

SHERRY L. SMITH, Associate Professor of History, 1985
B.A., M.A., Purdue University; Ph.D., University of Washington

WILLIAM DOYLE SMITH, Associate Professor of Economics, 1981
B.A., M.A., University of Texas at El Paso; Ph.D., Texas Tech University

MARTHA SMITHEY, Assistant Professor of Sociology and Criminal Justice, 1994
B.A., Louisiana Tech University; M.A., Texas Tech University; Ph.D., Texas A&M University

RICHARD L. SPRINKLE, Professor of Economics, 1982
B.S., M.A., Central Missouri State University; Ph.D., University of Arkansas

V. K. SRINIVASAN, Professor of Mathematics, 1970
B.S., M.A., M.Sc., Ph.D., Madras University, India

STEPHEN W. STAFFORD, P.E., Professor of Metallurgical and Materials Engineering, 1976
B.S.Met.E., University of Texas at El Paso; Ph.D., Rice University

TONY JASON STAFFORD, Professor of English, 1960
B.A., Wake Forest University; M.A., University of Texas at El Paso; Ph.D., Louisiana State University

JOAN GEORGETTE STANISWALIS, Associate Professor of Mathematics, 1990
B.A., California State University-Fullerton; Ph.D., University of California at San Diego

SCOTT A. STARKS, Professor of Electrical Engineering, 1989
B.S.E.E., University of Houston; Ph.D., Rice University

KATHLEEN A. STAUDT, Professor of Political Science, 1977
B.A., University of Wisconsin at Milwaukee; M.A., Ph.D., University of Wisconsin at Madison

MICHAEL J. STEVENS, Assistant Professor of Management, 1993
B.A., M.S., University of Utah; Ph.D., Purdue University

WILLIAM STOCKEBRAND, Associate Professor of Educational Leadership and Foundations, 1994
B.A., M.Ed., Ed.D., Temple University

ELLWYN REED STODDARD, Professor of Sociology and Anthropology, 1965
B.S., Utah State University; M.S., Brigham Young University; Ph.D., Michigan State University

JOSE LUIS SUÁREZ, Assistant Professor of Languages and Linguistics, 1991
Diplomado en Profesorado de Educación General Básica; M.A., Ph.D., University of Illinois at Urbana-Champaign

GARY L. SULLIVAN, Professor of Marketing, 1985
B.S., University of Massachusetts at Lowell; M.B.A., Florida Atlantic University; Ph.D., University of Florida

ANDREW H. P. SWIFT, JR., Professor in the Department of Mechanical Engineering, 1983
B.S., B.S.M.E., Union College; M.S., Sc.D., Washington University

ANTHONY JOSEPH TARQUIN, P.E., Professor of Civil Engineering, 1969
B.S.I.E., M.S.E, Ph.D., University of West Virginia

WALTER FULLER TAYLOR, JR., Professor of English, 1968
B.A., University of Mississippi; Ph.D., Emory University

LEONARD W. TER HAAR, Associate Professor of Chemistry, 1989
A.A., Pensacola Jr. College; B.S., University of West Florida; Ph.D., University of North Carolina at Chapel Hill

RICHARD VINCENT TESCHNER, Professor of Languages and Linguistics, 1976
A.B., Stanford University; M.A., Middlebury College; Ph.D., University of Wisconsin

RACHELLE RENE THIEWES, Professor of Art, 1976
B.A., Southern Illinois University; M.F.A., Kent State University

WILBERT HELDE TIMMONS, Professor Emeritus of History, 1949
B.A., Park College; M.A., University of Chicago; Ph.D., University of Texas at Austin

JOSEFINA V. TINAJERO, Professor of Teacher Education, 1981
B.S., M.Ed., University of Texas at El Paso; Ed.D., Texas A&I University

ROBERT DOLF TOLLEN, Associate Professor of Economics and Finance, 1972
B.A., M.A., West Texas State University; Ph.D., University of Texas at Austin

JOSEPH TOMAKA, Assistant Professor of Psychology, 1994
B.A., State University of New York College at M.A., Ph.D. State University of New York at Buffalo

MICHAEL M. TOPP, Assistant Professor of History, 1993
B.A., Trinity College; M.A., Ph.D., Brown University

GHOLAMREZA TORKZADEH, Professor of Information and Decision Sciences, 1993
B.S., Crawley College of Technology, Sussex, England; M.S., Brighton Polytechnic, Brighton, England; Ph.D., University of Lancaster, England

PATRICK A. TRAICHAL, Assistant Professor of Finance, 1994
B.A., Ph.D., Arizona State University

CURTIS B. TREDWAY, Assistant Professor of Music, 1993
B.M.E., Florida State University; M.M.E., Ph.D., University of Southern Mississippi

MARY CORN TREJO, Assistant Professor of Communication, 1967
A.B., Southwest Missouri State College; M.A., University of Missouri at Columbia; Ph.D., University of Tulsa

MELANIE TREVINO, Associate Professor of Management, 1987
B.A., M.S., University of Texas at Austin; D.B.A., George Washington University

SAM TRIMBLE, Associate Professor of Music, 1982
B.M., University of South Florida; M.M., North Texas State University

CHARLES D. TURNER, Professor of Civil Engineering, 1990
B.S., M.S., University of Nebraska at Lincoln; Ph.D., Colorado State University

LESLIE ULLMAN, Professor of English, 1979
B.A., Skidmore College; M.F.A., University of Iowa

BRYAN USEVITCH, Assistant Professor in the Department of Electrical & Computer Engineering, 1995
B.S., Brigham Young University; M.S., Ph.D., University of Illinois at Urbana-Champaign

GUY VANDEGRIFT, Assistant Professor of Physics, 1995
A.B., Ph.D., University of California, Berkeley

SHAILENDRA K. VARMA, Professor in the Department of Metallurgical and Materials Engineering, 1984
B.E.Met.E., University of Roorkee (India); M.S., University of Denver; Ph.D., Georgia Institute of Technology

J. RENE VILLALOBOS, Assistant Professor of Industrial Engineering, 1985
B.S., Instituto Tecnologico de Chihuahua; M.S., University of Texas at El Paso; Ph.D., Texas A&M University

ROBERTO ESCAMILLA VILLARREAL, Professor of Political Science, 1976
B.S., M.S., Texas A&I University; Ph.D., University of Oklahoma

ELIZABETH J. WALSH, Assistant Professor of Biological Sciences, 1994
B.S., Ph.D., University of Nevada, Las Vegas

JOHN WALTON, Assistant Professor in the Department of Civil Engineering, 1993
B.S., Western Illinois University; M.S., University of Virginia; M.S., University of Washington; Ph.D., University of Idaho

PAUL WANG, Assistant Professor of Physics, 1990
B.S., National Taiwan Normal University; M.S., Ph.D., State University of New York at Albany

WILLIAM G. WEAVER, III, Assistant Professor of Political Science, 1994
B.A., California State University; M.A., J.D., Ph.D., University of Virginia

ROBERT WEBB, Assistant Professor of Biological Sciences, 1992
B.A., M.A., Ph.D., Temple University

RONALD J. WEBER, Associate Professor of History, 1986
B.A., Fort Hays Kansas State University; M.A., Ph.D., University of Wisconsin

ROBERT H. WEBKING, Associate Professor of Political Science, 1978
B.A., University of Dallas; M.A., Ph.D., University of Virginia

JOHN OLIVER WEST, Professor of English, 1963
B.A., Mississippi College; M.A., Texas Tech University; Ph.D., University of Texas at Austin

JAMES L. WHITE, Associate Professor of Music, 1980
B.M., East Carolina University; M.M., Baylor University

CATHRINE A. WHITLEY, Assistant Professor of English, 1994
B.A., Johns Hopins University; M.A., Ph.D., University of California at Irvine

RANDOLPH HOWARD WHITWORTH, Professor of Psychology and Criminal Justice, 1960
B.S., Ph.D., University of Texas at Austin

DAVID H. WILLIAMS, Professor in the Department of Electrical Engineering, 1978
B.S.E.E., New Mexico State University; M.S., University of New Mexico; Ph.D., University of Texas at Austin

PIOTR WOJCIECHOWSKI, Assistant Professor of Mathematics Sciences, 1991
M.A., Warsaw University, Poland; Ph.D., Bowling Green State University

ALBERT Y. WONG, Associate Professor of Art, 1986
B.F.A., Columbus College of Art and Design; M.F.A., Kent State University

JAMES M. WOOD, Assistant Professor of Psychology, 1993
B.A., Harvard University; M.Div., Yale; M.A., Ph.D., University of Arizona

THOMAS A. WOOD, Professor of Educational Psychology and Special Services, 1991
B.A., Florida State University; M.Ed., Stetson University; Ed.D., Peabody College of Vanderbilt University

RICHARD DANE WORTHINGTON, Associate Professor of Biological Sciences, 1969
B.A., University of Texas at Austin; M.S., Ph.D., University of Maryland

MICHAEL L. WRIGHT, Assistant Professor of Theatre Arts, 1992
B.A., Rollins College; M.F.A., Tulane University

RICK I. ZADOS, Associate Professor of Mechanical and Industrial Engineering, 1994
B.S.M.E., M.S.M.E., Ph.D, Purdue University

MICHAEL A. ZÁRATE, Assistant Professor of Psychology, 1990
B.A., University of California, Santa Barbara; M.S., Ph.D., Purdue University

RAYMOND A. ZIMMERMAN, JR., Assistant Professor of Accounting, 1992
B.A., M.A., J.D., St. Mary's University; LL.M University of Denver, School of Law; Ph.D., Texas Tech University

CHARLES P. ZLATKOVICH, Associate Professor of Accounting 1987
B.B.A., M.B.A., Ph.D., The University of Texas at Austin

LIBRARY PROFESSIONAL STAFF

ROBERTA ARNEY, Reference Librarian, 1988
B.S., University of Texas at El Paso; M.S.L.S., North Texas State University

ROBERT BOGLE, Automation Librarian, 1989
B.A., Stanford University; M.A., San Jose State University; M.L.S., University of Texas at Austin

CESAR CABALLERO, Associate University Librarian for Public Services, 1974
B.B.S., University of Texas at El Paso; M.L.S., University of Texas at Austin

SEBASTIAN DIAZ, Head, Administrative Services, 1992
B.B.A., University of Texas at El Paso

LILIA FERNANDEZ, Humanities Reference Librarian, 1993
B.B.A., University of Texas at El Paso; M.L.S., University of Texas at Austin

NANCY W. FLECK, Cataloger, 1994
B.A., Eastern Michigan University; M.A., Michigan State; M.L.I.S., University of Michigan

LUKE JASTRZEBSKI, Head, Reference/Documents, 1989
B.A., Queens College; M.L.S., Pratt Institute; M.A., New York University

CAROL KELLEY, Assistant University Librarian for Collection Development, 1989
B.A., East Texas State University; M.L.S., University of Illinois

DAVID LARKIN, Head, Documents/Maps, 1986
B.A., Wittenberg University; M.L.S., Kent State University

PATRICIA M. LARSEN, University Librarian, 1994
B.A., University of California, Berkeley; M.B.A., Portland State University (Oregon); M.S.L.S., University of Kentucky, Lexington

PATRICIA A. LOGHRY, Serials Librarian, 1993
B.A., M.L.S., University of Wisconsin-Madison

ESPERANZA A. MORENO, Reference Librarian, 1976
B.A., University of Texas at El Paso; M.S.L.S., University of Illinois

BRUCE NEVILLE, Reference Librarian, 1992
B.S., University of Miami; M.L.S., Florida State University

JENNY RAYSON, Cataloger, 1989
B.A., Nebraska Wesleyan University; M.A.L.S., University of Missouri-Columbia

CLAUDIA RIVERS, Head, Special Collections, 1992
B.A., M.L.S., University of Texas at Austin

ANTONIO RODARTE, Head, Access Services, 1985
B.A., University of Texas at El Paso; M.L.S., University of Arizona

JUAN A. SANDOVAL II, Reference Librarian, 1981
B.A., Adams State College; M.A.L.S., University of Denver

GERRIANNE SCHAAD, Curator Librarian, Special Collections, 1994
B.A., St. Mary's Dominican College, New Orleans; M.A.L.S., University of South Florida, Tampa

LISA WEBER, Reference Librarian, 1992
B.A., Northern Arizona University; M.L.S., University of Arizona

ADMINISTRATIVE STAFF

RICARDO ADAUTO III, Assistant to the President, 1988
B.S., University of Texas at El Paso; J.D., University of California at Berkeley School of Law

DEBBIE AGTHE, Director, International Programs Office, 1992
B.B.A., University of Houston

EARL WYNN ANDERSON, Assistant Vice President for Finance and Administration, 1966
B.A., University of Texas at El Paso

SALLY J. ANDRADE, Director, Center for Institutional Evaluation, Research and Planning, 1993
B.S.F.S., M.S.F.S., Georgetown University; M.A., Trinity University; Ph.D., University of Texas at Austin

RICARDO V. ARANDA, Assistant Vice President for Student Support Services, 1976
B.B.A., University of Texas at El Paso; M.B.A., Sul Ross State University

PABLO ARENAS, Director, Alliance for Minority Participation, 1984
B.S., M.S., University of Nevada at Reno; Ph.D., Washington State University

STANLEY BALL, Director, Academic Development Center, 1964
B.S., University of Wyoming; M.S., University of Arizona; Ph.D., New Mexico State University

SAM BENAVIDES, Director of Food Services, 1980

ANDREW BERNAT, Director, Model Institutions for Excellence, 1982
B.S., Harvey Mudd College; M.A., Ph.D., University of Texas at Austin

MIGUEL A. BLANCO, Director and Training Specialist, Youth Opportunities Unlimited (YOU), 1986
B.A., University of Texas at El Paso

SANDRA BRAHAM, Director, Upward Bound Program/Y.O.U., 1992
B.A., University of Missouri-Columbia

JOHN R. BRISTOL, Dean of Science; Program Director, Border Biomedical Research Center; Director, Texas Western Press, 1970
B.A., Cornell College; M.A., Ph.D., Kent State University

VIRGINIA BURKETT, Coach, Cheerleaders and Golddiggers, 1989

PATRICIA CARO, TASP Coordinator, 1987
B.S., University of Texas at El Paso

BRIANE K. CARTER, Director, Career Services, 1980
B.A., West Virginia Institute of Technology; M.S., Marshall University

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

JESUS R CASTRO, Assistant Vice President for Student Auxiliary Services, 1977
B.A., M.A., University of Texas at El Paso

JANIS I. CAVIN, Director of Development, 1990
B.S., M.Ed., University of Texas at El Paso; Ph.D., New Mexico State University

NORMA O. CHACON, Director, High School Equivalency Program (HEP), 1992
B.B.A., University of Texas at El Paso

ALAN P. CHESNEY, Director, Human Resources Services, 1992
Ph.D., Case Western Reserve University

GERARD COCHRANE, Director, Materials Management, 1995
B.S., Park College

MIGUEL A. CORONA, Coordinator, Cooperative Education, 1992
B.B.A., University of Texas at El Paso

JORGE DESCAMPS, Director, Center for Professional Development and Technology, 1975
B.A., M.A., University of Puerto Rico; Ph.D., University of Florida

BARBARA ELLIS, Program, Director, Center for Organizational Research, 1990
B.A., Hollins College; Ph.D., University of South Florida

KELLIE FAULKENBERRY, Director, University Child Care Center, 1993

CHARLES J. FEY, Dean of Students, 1992
B.A., M.Ed., Pennsylvania State University; Ed.D., Texas A&M University

WILLIAM FURLONG, Director, University Bookstore, 1970
B.S., University of Texas at El Paso

CARLOS GARCIA, Director, Union Services and Housing, 1977
B.A., M.A., University of Texas at El Paso

LEOPOLDO A. GEMOETS, Director, Center for Entrepreneurial Development, Advancement, Research, and Support, 1984
B.S., M.S., University of Texas at El Paso; Ph.D., Santa Lucia Health Sciences University

JAMES R. GILGER, JR., C.P.A., Director of Internal Audits, 1984
B.B.A., Texas Tech University

JUAN GONZALEZ, Bursar, 1994
B.B.A., University of Texas at El Paso

LINDA GONZALEZ-HENSGEN, Director, Financial Aid, 1976
B.B.A., University of Texas at El Paso

CAROLYN GOUGH, Director, Franchise Center, 1994
B.M.E., University of Kansas

CHARLES G. GROAT, Director, Center for Environmental Resource Management, 1995
B.S., University of Rochester; M.S., University of Massachusetts; Ph.D., University of Texas at Austin

DIANA GUERRERO, Director of Admissions, 1969
B.S., B.A., M.Ed., University of Texas at El Paso

HARMON M. HOSCH, Director, Center for Law and Human Behavior, 1975
B.A., University of Northern Iowa; M.A., Pepperdine University; Ph.D., The New School for Social Research

FRANK HOY, Dean for Business; Director, Center for the Study of Western Hemisphere Trade, 1991
B.B.A., University of Texas at El Paso; M.B.A., North Texas State University; Ph.D., Texas A&M University

HENRY T. INGLE, Assistant Vice President for Technology Planning and Development, and Professor and Chair, Communication Department, 1994
B.A., Texas Western College; M.S., Newhouse School Communication, Syracuse University; Ph.D., Stanford University

MONA JACKSON, Coordinator, Student Judicial Affairs, 1995
B.S., M.Ed., James Madison University

SUSAN JORDAN, Director of Graduate Student Services, 1992
B.F.A., Ohio Wesleyan University; M.Ed., Texas Tech University

MICHAEL A. KOLITSKY, Associate Vice President for Information Technology, 1993
B.S., Juniata College; Ph.D., Temple University

ROMY LEDESMA, Director, AmeriCorps, 1989
B.S., M.S., University of Texas at El Paso; Ph.D., Texas A&M University

ALBERTO LOPEZ, Executive Director of External Relations, 1983
B.A., M.A., Austin College

JAMES L. MARSH, Director, Environmental Health and Safety, 1991
B.S.M.S., Central State University; M.S., Oklahoma State University; Ph.D., University of Michigan

LILLIAN MAYBERRY, Director of Honors Program, Junior Scholars Program, and National Student Exchange, 1979
B.S., California State University, San Jose; M.S., University of Nevada, Reno; Ph.D., Colorado State University

RALPH S. McCRAE, Director, Academic Advising Center, 1988
B.A., University of Minnesota; M.S., Drake University

YOLANDA MONTOYA, Director, Disabled Student Services, 1995
B.U.S., University of New Mexico; M.S.W., University of Texas at Austin

HECTOR MUNOZ, Director, Recreational Sports Department, 1987
B.S., University of Chihuahua; M.S.E., University of Kansas

LAWRENCE E. MURR, Director, Materials Research Institute, 1989
B.Sc., Albright College; B.S., M.S., Ph.D., Pennsylvania State University

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

M. SUSANA NAVARRO, Director, El Paso Collaborative for Academic Excellence, 1992
B.A., University of Texas at El Paso; Ph.D., Stanford University

JUAN M. ONTIVEROS, Director, Facilities Services, 1991
B.S.M.E., M.S.M.E., University of Texas at El Paso

ROBERT OSEGUEDA, Director, FAST Center for Structural Integrity of Aerospace Systems, 1987
B.S., M.S., Ph.D., Texas A&M University

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

MANNY PACILLAS, Director, Institute for Manufacturing and Materials Management; Director, Texas Centers for Border Economics and Enterprise Development, 1989
B.S., University of Texas at El Paso

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

KEITH H. PANNELL, Director, Minority Access Research Careers, 1970
B.Sc., M.Sc., University College, Durham University; Ph.D., University of Toronto

MIGUEL PICORNELL-DARDER, Director, Center for Geotechnical and Highway Materials Research, 1985
B.s., Escuela de Ingenieros de Caminos (Spain); M.E., Ph.D., Texas A&M University

NORMA REY, Box Office Manager, Ticket Center, 1987

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

CLAUDINE M. RICCILLO, Assistant Director, Office of Sponsored Projects, 1989
A.A., University of Southern Colorado; B.A., University of Wyoming

SYLVIA H. RODRIGUEZ, Dean of Enrollment Services, 1995
B.A., University of Houston; M.A., Texas Southern University

WILLIAM E. RODRIGUEZ, Chief of Police, 1989
B.B.A., University of Texas at El Paso

KATHLEEN ROGERS, Director, News and Publications, 1978
B.F.A., Texas Tech University

SHARRON L. RONCO, Director, Institutional Studies Office, 1990
B.A., Marquette University; M.S., University of Wisconsin; Ph.D., University of North Texas

IRMA N. RUBIO, Program Coordinator/Manager, El Paso Partnership for Excellence in Teacher Education, 1989
M.P.A., University of Texas at El Paso

LYNDA RUSHING, Program Coordinator, English Language Institute, 1992
B.A., University of South Florida

REBECCA SALCIDO, Equal Employment Officer, 1992
B.A., Austin College; J.D., Texas Tech School of Law

JULIE P. SANFORD, Associate Vice President for Research and Graduate Studies, 1992
B.S., M.A., Texas A & I University; Ph.D., University of Texas at Austin

SAMUEL SCHMIDT, Interim Director, Center for Inter-American and Border Studies (C.I.A.B.S.), 1991
B.A., National Autonomous University of Mexico (UNAM); M.A., Hebrew University of Jerusalem; Ph.D., National Autonomous University of Mexico

FLORENCE SCHWEIN, Director, Centennial Museum, 1992
A.A., Camden County College; B.A., George Mason University; M.A.T., George Washington University

GLADYS R. SHAW, Director, Tutorial and Learning Center and the Student Support Services Program, 1983
B.A., M.A., New Mexico Highlands University

MIGUEL SIFUENTES, Registrar, 1986
B.A., University of Texas at El Paso

MARGARET A. SMITH, Assistant Vice President for Academic Affairs, 1987
B.A., M.A., State University of New York, Fredonia; Ph.D., Rensselaer Polytechnic Institute

MICHAEL SPENCE, Director, Special Events Center, 1985
B.S., M.A., University of Texas at El Paso

JOAN G. STANISWALLIS, Director, Minority Biomedical Research Support, 1990
B.A., California State University-Fullerton; Ph.D., University of California at San Diego

ROBERT L. STAKES, Director, Division of Professional and Continuing Education, 1982
B.B.A., M.B.A., Lamar University

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

GREGORY L. TAYLOR, Director, Union Dinner Theatre and Union Programs Office, 1984
B.A., M.A., University of Texas at El Paso

JOHN K. THOMPSON, Director, Intercollegiate Athletics, 1993
B.A., Western New Mexico

JOSEFINA V. TINAJERO, Director, Mother-Daughter Program; Director, Project BECMS and BEEMS, 1981
B.S., M.Ed., University of Texas at El Paso; Ed.D., Texas A & M University

BRENDA TRINIDAD, Coordinator, Wellness Program, 1987
B.S., M.A., University of Texas at El Paso

LOUIS VALLES, General Manager, KTEP-FM, 1987
B.A., University of Texas at El Paso

CYNTHIA VILLA, CPA, Comptroller, 1986
B.B.A., University of Texas at El Paso

ROBERTO VILLARREAL, Associate Vice President for Academic Affairs, 1976
B.S., M.S., Texas A & I University; Ph.D., University of Oklahoma

SHEELA WOLFORD, Manager, Student Publications, 1990
B.A., M.S., University of Texas at El Paso

THOMAS A. WOOD, Director, Peace Corps Fellows, USA Program, 1991
B.A., Florida State University; M.Ed., Stetson University; Ed.D., Peabody College of Vanderbilt University

STEPHEN C. ZERWAS, Director, Student Assessment and Testing 1993
B.A., Maryville College, M.A., Ph.D., University of Iowa

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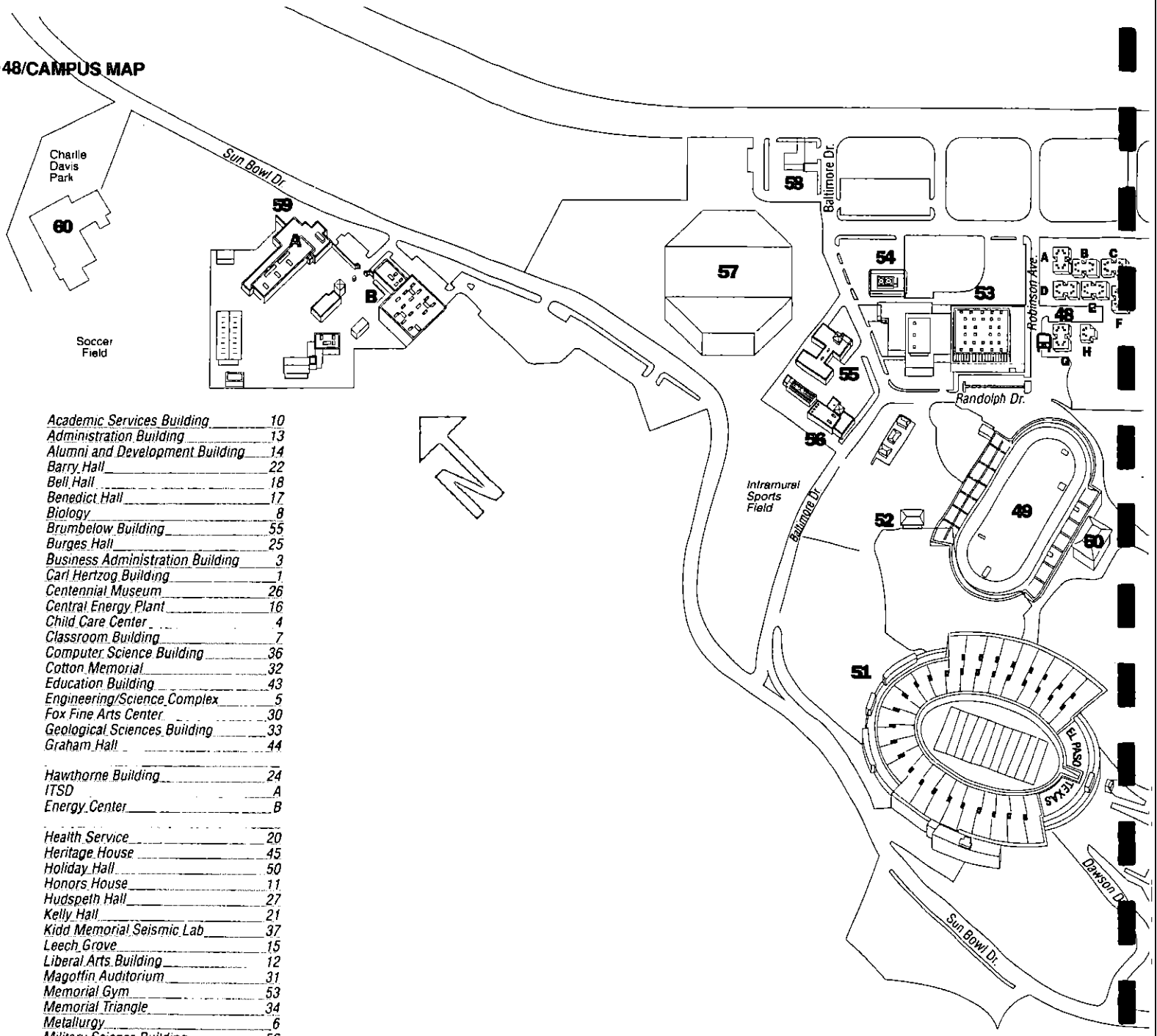

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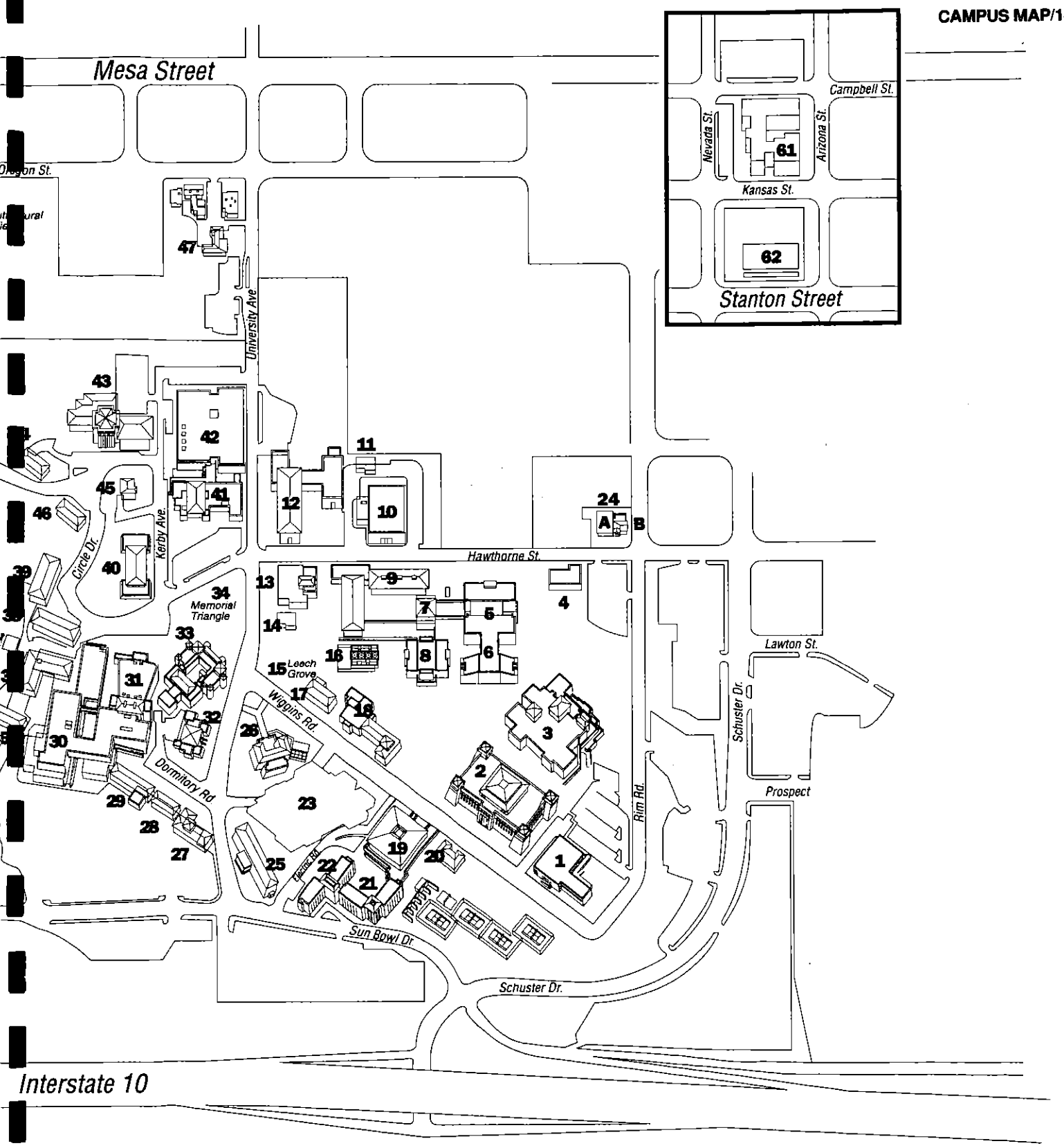
UTEP

The University of Texas at El Paso


Mesa Street
Campbell St.
Nevada St.
Arizona St.
61
Kansas St.
62
Stanton Street
University Ave
Hawthorne St.
Lawton St.
Schuster Dr.
Prospect
Rim Rd.
Wiggins Rd.
Dormitory Rd.
Sun Bowl Dr.
Schuster Dr.
Interstate 10
Circle Dr.
Kerby Ave.
Memorial Triangle
Leech Grove
A
B

DEGREES Offered and Areas of Study

Doctor of Education in Educational Leadership and Administration

Doctor of Philosophy in Computer Engineering

Doctor of Philosophy in Environmental Science and Engineering

Doctor of Philosophy in Geological Sciences

Doctor of Philosophy in Materials Sciences and Engineering

Doctor of Philosophy in Psychology
- Psychology and Health
- Human Behavior in Organizations

Master of Accountancy

Master of Arts
- Art
  - Art Education
  - Studio Art
- Communication
- Education
- English
  - English and American Literature
  - Professional Writing and Rhetoric
- History
  - Border History
- Linguistics
  - Applied Linguistics
  - Hispanic Linguistics
- Political Science
- Psychology
  - Clinical
  - General Experimental
- Sociology
- Spanish
- Theatre Arts

Master of Arts in Interdisciplinary Studies

Master of Arts in Teaching
- Mathematics

Master of Business Administration

Master of Education
- Curriculum and Instruction
- Education
- Educational Administration
- Educational Diagnostician
- Educational Supervision
- Guidance and Counseling
- Instructional Specialist
- Reading Education
- Special Education

Master of Engineering in Environmental Engineering

Master of Fine Arts
- Creative Writing

Master of Music
- Music Education
- Music Performance

Master in Public Administration

Master of Science
- Biological Sciences
- Chemistry
- Civil Engineering
- Computer Engineering
- Computer Science
- Economics
- Electrical Engineering
- Engineering
- Geological Sciences
- Geophysics
- Health and Physical Education
- Industrial Engineering
- Kinesiology
- Manufacturing Engineering
- Mathematics
- Mechanical Engineering
- Metallurgical and Materials Engineering
- Physics
- Speech-Language Pathology
- Statistics

Master of Science in Environmental Engineering

Master of Science in Interdisciplinary Studies

Master of Science in Nursing
- Adult Health Nursing
- Community Health
- Community Health Nursing —Family Nurse Practitioner
- Nursing Administration
- Nurse Midwifery
- Parent-Child Nursing
- Psychiatric/Mental Health Nursing
- Women's Health Care—Nurse Practitioner

U.T. Austin/UTEP Co-operative Programs
- Master of Library and Information Science
- Master of Science in Social Work
- Doctor of Philosophy with concentration in Border Studies

U.T.H.S.C. Houston/UTEP Co-operative Program
- Master of Public Health

U.T.M.B. Galveston/UTEP Co-operative Program
- Masters in Physical Therapy

Additional Degree Programs
- Doctor of Pharmacy
  - UT-Austin offers a portion of their PharmD degree in El Paso. UTEP provides some of the facilities; UT-Austin is responsible for the curriculum and faculty. Preceptorships may be completed in the El Paso area. A significant portion of the coursework must be taken on the Austin campus.

Additional doctoral and master's degree programs are pending final approval. For information, contact the Graduate Advisor for a specific academic area or the Graduate Student Services Office, (915) 747-5491.

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