

The University of Texas at Arlington®  
Graduate Catalog 2004 - 2006

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# University and Graduate School Calendar 2004-2005

Graduating students should see p. 38 for the final semester checklist. The Graduate School may change this calendar if conditions warrant.

	Fall 2004	Spring 2005	Summer 2005
International Student Application and Readmission Deadline	April 9	September 10, 2004	January 21
U.S. Student Application Deadline	June 11	October 22, 2004	March 25
U.S. Student Readmission Application Deadline	July 9	November 12, 2004	April 15
Registration for All Students	July 1-Aug. 22	Nov. 25-Jan. 17	1st 5-wk, 11-wk: April 28-May 30 2nd 5-wk: April 28-July 5
First Day of Classes	August 23	January 18	1st 5-wk, 11-wk: May 31 2nd 5-wk: July 6
Late Registration	August 23-27	January 18-21	1st 5-wk, 11-wk: May 31-June 1 2nd 5-wk: July 6-7
Census Date	September 8	February 2	1st 5-wk, 11-wk: June 6 2nd 5-wk: July 12
Final Day to Reserve Graduate Courses for Graduate Credit	September 8	February 2	1st 5-wk, 11-wk: June 6 2nd 5-wk: July 12
*Deadline for Graduation: Last Date to File Application for Graduation and File Final Program of Work	September 24	February 18	July 1
Last Date to Drop or Withdraw	November 12	April 15	1st 5-wk: June 23 11-wk: July 25 2nd 5-wk: August 1
Current and Former Student Registration Begins	Nov. 1 (Winter Session & Spring)	April 4 (Maymester & Summer)	June 6 (Fall)
Final Date to Request Master's Exam/Dissertation Defense and Submit Copy to Supervising Committee	November 8	April 11	July 11
Final Date to Hold Master's Exam/Dissertation Defense and Submit Copy of Thesis/Dissertation to Graduate School for Mechanical Check	November 22	April 25	July 25
Registration Begins for All Students	Nov. 25 (Winter Session & Spring)	April 28 (Maymester & Summer)	June 30 (Fall)
Final Date to Submit Approved Thesis/Dissertation to Graduate School and Submit Report of Final Master's Examination/Dissertation Defense	December 3	May 6	August 5
Final Exams	December 4, 6-10	May 7, 9-13	1st 5-wk: July 5 2nd 5-wk: Aug. 9 11-wk: Aug. 9-10
End of Semester Deadline (See <i>In Absentia</i> Registration, p. 36)	December 14	May 17	August 16
Graduation Exercises	December 10-12	May 13-15	August 13-14

\*NOTE: Graduating students will be billed for graduation-related fees before the end of the semester.

Winter Session, 2004-2005		Maymester, 2005	
Last Day to Register	December 13, 2004	Last Day to Register	May 16
Winter Session classes, Monday-Thursday	December 13-16, 2004	Maymester classes, Monday-Saturday	May 16-21
Census Date	December 14, 2004	Census Date	May 17
Classes continue, Monday-Thursday	January 3-6, 2005	Classes continue, Monday-Friday	May 23-27
Last Date to Drop or Withdraw	January 6, 2005	Last Date to Drop or Withdraw	May 25
Classes continue, Monday-Wednesday	January 10-12, 2005	Final exams	June 3
Final exams	January 13, 2005		

## Holidays

Labor Day: September 6, 2004  
 Thanksgiving: November 25-28, 2004  
 Martin Luther King Jr. Day: January 17, 2005  
 Spring Vacation: March 14-20, 2005  
 Memorial Day: May 30, 2005  
 Independence Day: July 4, 2005

# University and Graduate School Calendar 2005-2006

Graduating students should see p. 38 for the final semester checklist. The Graduate School may change this calendar if conditions warrant.

	Fall 2005	Spring 2006	Summer 2006
International Student Application and Readmission Deadline	April 8	September 9, 2005	January 20
U.S. Student Application Deadline	June 10	October 21, 2005	March 24
U.S. Student Readmission Application Deadline	July 8	November 11, 2005	April 14
Registration for All Students	June 30-Aug. 21	Nov. 24-Jan. 16	1st 5-wk, 11-wk: April 27-May 29 2nd 5-wk: April 27 -July 4
First Day of Classes	August 22	January 17	1st 5-wk, 11-wk: May 30 2nd 5-wk: July 5
Late Registration	August 22-26	January 17-20	1st 5-wk, 11-wk: May 30-31 2nd 5-wk: July 5-6
Census Date	September 7	February 1	1st 5-wk, 11-wk: June 5 2nd 5-wk: July 11
Final Day to Reserve Graduate Courses for Graduate Credit	September 7	February 1	1st 5-wk, 11-wk: June 5 2nd 5-wk: July 11
*Deadline for Graduation: Last Date to File Application for Graduation and File Final Program of Work	September 23	February 17	June 30
Last Date to Drop or Withdraw	November 11	April 14	1st 5-wk: June 22 11 wk: July 24 2nd 5-wk: July 31
Current and Former Student Registration Begins	Oct. 31 (Winter Session & Spring)	April 3 (Maymester & Summer)	June 5 (Fall)
Final Date to Request Master's Exam/Dissertation Defense and Submit Copy to Supervising Committee	November 7	April 10	July 10
Final Date to Hold Master's Exam/Dissertation Defense and Submit Copy of Thesis/Dissertation to Graduate School for Mechanical Check	November 21	May 5	July 24
Registration Begins for All Students	Nov. 24 (Winter Session & Spring)	April 27 (Maymester & Summer)	June 29 (Fall)
Final Date to Submit Approved Thesis/Dissertation to Graduate School and Submit Report of Final Master's Examination/Dissertation Defense	December 2	April 19	August 4
Final Exams	December 3, 5-9	May 6, 8-12	1st 5-wk: July 3 2nd 5-wk: Aug. 8 11-wk: Aug. 8-9
End of Semester Deadline (See <i>In Absentia</i> Registration, p. 36)	December 13	May 16	August 14
Graduation Exercises	December 9-11	May 12-14	August 12-13

\*NOTE: Graduating students will be billed for graduation-related fees before the end of the semester.

## Winter Session, 2005-2006

Last Day to Register	December 12, 2005
Winter Session classes, Monday-Thursday	December 12-15, 2005
Census Date	December 16, 2005
Classes continue, Monday-Thursday	January 2-5, 2006
Last Date to Drop or Withdraw	January 9, 2006
Classes continue, Monday-Wednesday	January 9-11, 2006
Final exams	January 12, 2006

## Maymester, 2006

Last Day to Register	May 15
Maymester classes, Monday-Saturday	May 15-20
Census Date	May 16
Last Date to Drop or Withdraw	May 24
Classes continue, Monday-Friday	May 22-26
Final exams	June 2

## Holidays

Labor Day: September 5, 2005  
 Thanksgiving: November 24-27, 2005  
 Martin Luther King Jr. Day: January 16, 2006  
 Spring Vacation: March 13-19, 2006  
 Memorial Day: May 29, 2006  
 Independence Day: July 4, 2006

# The University of Texas System

## Board of Regents

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James Richard Huffines, *Chair*  
Rita C. Clements, *Vice-Chair*  
Woody L. Hunt, *Vice-Chair*  
Cyndi Taylor Krier, *Vice-Chair*  
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(Terms Expire February 1, 2005)

Robert A. Estrada, *Dallas*  
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Charles Miller, *Houston*

(Terms Expire February 1, 2007)

Rita C. Clements, *Dallas*  
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(Terms Expire February 1, 2009)

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# The University of Texas at Arlington

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Kent Gardner, Ed.D., *Vice President for Student Affairs*  
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Elizabeth Poster, Ph.D., *Dean, School of Nursing*  
Paul Paulus, Ph.D., *Interim Dean, College of Science*  
Santos H. Hernández, Ph.D., *Dean, School of Social Work*  
Richard L. Cole, Ph.D., *Dean, School of Urban and Public Affairs*

## Graduate School Officers

Philip Cohen, Ph.D., *Dean of Graduate Studies*  
Raymond L. Jackson, Ph.D., *Associate Dean, Graduate School*

# The University of Texas at Arlington

## University Profile

The University of Texas at Arlington is located on a modern, 392-acre campus in the center of the Dallas/Fort Worth Metroplex. The 18-acre UTA/Fort Worth Campus, Fort Worth's first state-supported university campus, offers high-demand graduate level courses in several disciplines. UTA/Fort Worth also houses the Automation & Robotics Research Institute. A rapidly growing library, well-equipped engineering and science laboratories, several specialized research centers and joint programs with other institutions of The University of Texas System as well as with other regional and national academic and research institutions provide graduate students at U.T. Arlington with excellent opportunities for advanced study and research. The campus and Metroplex area offer a wide variety of cultural and recreational opportunities, including museums, concerts, ballet, theater, family recreation, professional sports and other interests.

Founded in 1895 as Arlington College, a private liberal arts institution, U.T. Arlington has changed with the times and its surroundings, undergoing a maturing process and a succession of names, ownerships and missions. In 1959, it was elevated to senior college status and, in 1965, was transferred from the Texas A&M System to The University of Texas System. Its final name change came in 1967, when it became The University of Texas at Arlington.

With an enrollment of approximately 25,000 students, U.T. Arlington is the second largest of the 15 institutions in The University of Texas System. The student body has become increasingly diversified with students representing almost every state in the United States and more than 100 countries. Graduate students comprise approximately 25 percent of the total enrollment. The University's academic units include the College of Business Administration, College of Engineering, College of Liberal Arts and College of Science as well as the School of Architecture, School of Education, School of Nursing, School of Social Work, School of Urban and Public Affairs and the Graduate School.

U.T. Arlington has emerged as a comprehensive teaching, research and public service university offering an array of bachelor's, master's, doctoral and special professional degrees and certificates. Its history of achievement can be attributed to an accomplished faculty, a dedicated student body, an increasing number of successful alumni and the maturation of the Dallas/Fort Worth area as a nationally and internationally significant metropolis.

## Mission Statement

The University of Texas at Arlington is a comprehensive research, teaching, and public service institution whose mission is the advancement of knowledge and the pursuit of excellence. The University is committed to the promotion of lifelong learning through its academic and continuing education programs and to the formation of good citizenship through its community service learning programs. The diverse student body shares a wide range of cultural values and the University community fosters unity of purpose and cultivates mutual respect.

As a University, we affirm our commitment to the following objectives:

- The University is committed to comprehensive programs of academic research. This research effort requires attracting and

retaining scholars who promote a culture of intellectual curiosity, rigorous inquiry, and high academic standards among their fellow faculty and the students they teach.

- The University prepares students for full, productive lives and informed and active citizenship. To that end, we have developed undergraduate and graduate curricula and classroom practices that engage students actively in the learning process. Outside the classroom a wide range of student organizations and activities contribute to the learning environment. Our service learning program offers students the opportunity to supplement their academic study with internships in a variety of community settings, testing their skills and aptitudes and challenging their values. State-of-the-art teaching technologies, distance education, and off-site instruction afford access to off-campus as well as traditional students. Non-degree certificate and continuing education programs offer practical, aesthetic, and intellectually stimulating opportunities for community learners, for individual courses or a sustained program of study.
- The mission of a university can be achieved only when its students, faculty, staff, and administrators value and promote free expression in an atmosphere of tolerance, responsibility, and trust. The University regards these attributes as prerequisites for any community of learners and vigilantly strives to maintain them.
- Mindful of its role as a resource to the community, locally, nationally, and internationally, the University continually seeks partnerships with public and private concerns in order to advance the economic, social, and cultural welfare of its constituencies. We serve the needs of the North Texas community by sponsoring public lectures and academic symposia, as well as artistic, musical, and dramatic productions.

## Accreditation

The University of Texas at Arlington is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia, 30033-4097; telephone 404-679-4501) to award bachelor's, master's and doctoral degrees.

In addition, many of U.T. Arlington's academic departments and schools have received national accreditation from specific agencies. These accreditations are detailed under the individual listings for departments and schools in this catalog.

## Government

The government of U.T. Arlington is vested in a nine-member Board of Regents of The University of Texas System, nominated by the governor and approved by the Senate. The Office of the Chancellor is the chief administrative office of The University of Texas System and is located in Austin. The chief administrative officer of U.T. Arlington is the president, under authority of the Office of the Chancellor of the U.T. System and the Board of Regents. A complete statement of the authority and duties of the Regents and of the several officers,

together with an account of the organization of the system, is published in the **Rules and Regulations of the Board of Regents of The University of Texas System**.

## Equal Opportunity Policy Statement

The University of Texas at Arlington complies with the **Equal Pay Act of 1963**, **Titles VI and VII of the Civil Rights Act of 1964**, **Executive Order 11246**, the **Age Discrimination in Employment Act of 1967**, **Title IX of the Educational Amendments of 1972**, **Sections 503 and 504 of the Rehabilitation Act of 1973**, the **Americans with Disabilities Act, 1990**, the **Vietnam Era Veterans Readjustment Act of 1974** and the **Rules and Regulations of the Board of Regents of The University of Texas System**.

It is the policy of The University of Texas at Arlington that to the extent provided by these applicable laws no person shall, on the basis of race, color, national origin, religion, age, sex, disabilities or veteran status, be denied employment or admission, be excluded from participation in, be denied the benefits of or subject to discrimination under, any program or activity that it sponsors or conducts. It is also the University's policy to maintain an environment free from discrimination on the basis of sexual orientation.

Inquiries concerning the application of this policy and complaints of discrimination should be directed to the Office of Equal Opportunity and Affirmative Action, 710 S. Davis Drive, Office and Classroom Building (OCB), 817-272-2106, Fax: 817-272-5806. E-mail: [eoaa@uta.edu](mailto:eoaa@uta.edu). For policy and additional information visit Web site: [www.uta.edu/eoaa](http://www.uta.edu/eoaa).

## Sexual Harassment, Sexual Misconduct and Consensual Relationships Policy

The University of Texas at Arlington is committed to an academic and working environment free from inappropriate conduct of a sexual nature. Sexual harassment is a prohibited practice under Title VII of the **Civil Rights Act of 1964** for employees as amended by the **Equal Employment Opportunity Act of 1973**, and for students under Title IX of the **Education Amendments of 1972**. Sexual harassment, sexual misconduct and consensual relationships between faculty members and the students they currently teach or supervise, and between employees in positions of authority and their subordinates, are prohibited under University policy and are sanctionable.

Sexual harassment includes, but is not limited to, unwelcome sexual advances, requests for sexual favors, insults, sexual threats, innuendoes and other verbal or physical conduct of a sexual nature under circumstances where: 1) submission to such conduct is made either explicitly or implicitly a term or condition of employment (or a student's status in a course, program or activity); 2) submission to or rejection of such conduct by an employee is used as a basis for employment decisions affecting the individual (or in the case of a student, it is used as a basis for academic or other decisions affecting a student); or 3) such conduct has the purpose or effect of unreasonably interfering with the individual's employment (or the student's educational experience), or of creating an intimidating, hostile or offensive academic environment.

Inappropriate sexual behavior should be reported to the Office of Equal Opportunity and Affirmative Action, 710 S. Davis Drive, Office

and Classroom Building (OCB), 817-272-2106, Fax 817-272-5806. E-mail: [eoaa@uta.edu](mailto:eoaa@uta.edu). For policy and additional information visit Web site: [www.uta.edu/eoaa](http://www.uta.edu/eoaa).

## UTA/Fort Worth Campus

UTA/Fort Worth strives to serve the Tarrant County region with excellence in accessible, state-of-the-art, and affordable higher education. UTA/Fort Worth is committed to:

- meeting the lifelong learning needs of working professionals
- offering graduate as well as upper-division undergraduate programs

UTA/Fort Worth offers master's degree programs tailored for working professionals. The cohort-based Accelerated MBA program starts each fall semester and takes 28 months to complete. The cohort-based Master of Science in Health Care Administration and the Master of Science in Engineering Management is also cohort in nature and takes 24 months from start to finish. A master's degree in education, "Scholars of Practice," with Texas principal certification, prepares teachers to become principals. This field-based experience covers five consecutive semesters as a cohort, over a two-year period. These are the highest quality and most affordable programs of their kind in the Tarrant County region. As of Fall 2004, UTA/Fort Worth will add Social Work graduate classes. A complete schedule is available at <http://utafw.uta.edu>.

UTA/Fort Worth has partnered with Tarrant County College (TCC) to offer select UTA junior/senior level classes on both the TCC-Northeast and the TCC-Northwest campuses.

In addition, UTA/Fort Worth provides non-credit professional development short courses, focused on cross-industry workplace needs, including: corporate ethics and values, teamwork, customer service, diversity and career survival.

UTA/Fort Worth is conveniently 10 minutes east of downtown Fort Worth. The campus is located between Randol Mill and Trinity Blvd., just west of East Loop 820, north of I-30, and South of 121. The address is 7300 Jack Newell Blvd. S., Fort Worth, TX 76118. An abundance of parking is available. Please access UTA/Fort Worth's Web site, <http://utafw.uta.edu>, for more information. The main information phone number is 817-272-5988.

## UT TeleCampus (UTTC)

Launched in May 1998, the UT TeleCampus is a service-driven central support system for online education initiatives among the 15 U.T. System institutions. Students may complete online courses and degree programs entirely at a distance that meet the same high-quality academic standards as their on-site equivalents. The UT TeleCampus provides extensive student services in addition to online learning opportunities. These include 24/7/365 technical support, digital library and online academic support. Several of the degree programs offered via the UT TeleCampus are collaborative with multiple UT campuses offering courses toward a single degree. To learn more about online collaborative programs and to view course offerings and descriptions please link to the UT TeleCampus at [www.telecampus.utsystem.edu](http://www.telecampus.utsystem.edu).

With questions, please contact our support staff via e-mail at [telecampus@utsystem.edu](mailto:telecampus@utsystem.edu) or toll-free phone at 1-888-TEXAS-16. Staff is available to assist you Monday-Friday from 8 a.m.-5 p.m.



# The Graduate School

Dean of Graduate Studies: Philip Cohen, Ph.D.

333 Davis Hall • Box 19167 • 817-272-2688 • <http://grad.uta.edu> • [graduate.school@uta.edu](mailto:graduate.school@uta.edu)

## Mission and Philosophy

The Graduate School is administratively located in the Office of Graduate Studies.

The goal of graduate study is the development of a student's ability for creative research, critical evaluation and scholarship in a particular discipline or in interrelated disciplines. Graduate study actively involves students in research, and by sharing in investigations with their professors, graduate students acquire the spirit as well as methods of creative scholarship. Achievement of the goal is demonstrated by preparations of reports, theses and dissertations. In practice-oriented and teaching-oriented graduate programs, emphasis is on preparation for careers in application of existing knowledge in professional practice and teaching.

## History and Overview

The Graduate School is the focus of advanced studies and research in the University. A graduate faculty of more than 400 makes the Graduate School an important influence in creating high standards for academic accomplishment and in achieving an intellectual environment of the highest quality for the University community.

The Graduate School of The University of Texas at Arlington was established in 1966 with the initiation of six master's degree programs. Doctoral degree programs were added in 1969 with a Ph.D. in engineering. Today the University offers master's degrees in 74 disciplines or interdisciplinary programs and 34 doctoral degree programs.

## Graduate School Web Site

Students and applicants are encouraged to visit the Graduate School Web site at <http://grad.uta.edu> to locate important information about graduate programs and the admissions process. The Web site is organized into user groups that linking students with all the important Web resources on campus.

1. A link to the online version of this catalog is available at this Web site.
2. Prospective students may use the Virtual Admission Counselor link located at this Web site to find admission and application information as well as application forms. Interested students may use this link to request information be mailed directly to them.

3. Many people considering graduate study at The University of Texas at Arlington visit our campus to attend a Graduate Forum. This provides an opportunity to evaluate programs in detail and meet graduate advisors and faculty. Information about these events and a convenient reservation system are provided on the Web site through the Graduate Forums Week link located on the Graduate School's main page.
4. Newly admitted students are encouraged to visit this Web site and complete a virtual orientation that quickly familiarizes them with advising, registration and vital campus support.
5. Newly admitted and currently enrolled students can obtain information on Graduate School rules and procedures, and obtain forms needed by current graduate students through the Virtual Graduate School Advisor link located on the Web site.
6. The Graduate School Web site provides students a gateway to excellent service. All interested individuals may use the Web site to gain access to a host of career, research and academic support tools.

# Directory of Offices

All telephone numbers are Dallas/Fort Worth Metroplex numbers and carry the 817 area code. The University postal zip code is 76019. To contact Graduate Advisors, see the individual departmental and program descriptions in this catalog.

Office/Location	Telephone	Fax	E-Mail Address	Web Address
Dean of Graduate Studies <i>Room 333, Davis Hall</i>	272-2688	272-2627*	graduate.school@uta.edu	<a href="http://grad.uta.edu">http://grad.uta.edu</a>
Graduate Admissions <i>Room 333, Davis Hall</i>	272-2688	272-2627*	graduate.school@uta.edu	<a href="http://grad.uta.edu">http://grad.uta.edu</a>
Assessment Services <i>Room 201, Davis Hall</i>	272-2362	272-7532	testing@uta.edu	<a href="http://www2.uta.edu/assessment">www2.uta.edu/assessment</a>
Career Services <i>Room 216, Davis Hall</i>	272-2932	272-5792	careers@uta.edu	<a href="http://careers.uta.edu">http://careers.uta.edu</a>
Counseling Services <i>Room 216, Davis Hall</i>	272-3671	272-5523		<a href="http://counseling.uta.edu">http://counseling.uta.edu</a>
Financial Aid <i>Room 252, Davis Hall</i>	272-3561	272-3555	fao@uta.edu	<a href="http://www.uta.edu/fao">www.uta.edu/fao</a>
Health Services <i>605 S. West St.</i>	272-2771	272-2744		<a href="http://www.uta.edu/healthservices">www.uta.edu/healthservices</a>
Housing <i>Room 210, University Center</i>	272-2791	272-2717	housing@uta.edu	<a href="http://www.uta.edu/housing">www.uta.edu/housing</a>
International Office <i>Lower Level, University Center</i>	272-2355	272-5005	international@uta.edu	<a href="http://www.uta.edu/io">www.uta.edu/io</a>
Office for Students with Disabilities <i>Lower Level, University Center</i>	272-3364 272-3323 (TTY)	272-1447	dianne@uta.edu	<a href="http://www.uta.edu/disability">www.uta.edu/disability</a>
Center for Multicultural Cooperation <i>Lower Level, University Center</i>	272-2099	272-3722	agreen-clayton@uta.edu	<a href="http://www.uta.edu/cmc">www.uta.edu/cmc</a>
SOAR Learning Services <i>Room 132, Hammond Hall</i>	272-3684	272-3770		<a href="http://www.uta.edu/soar">www.uta.edu/soar</a>
Student Judicial Affairs <i>Lower Level, University Center</i>	272-2354	272-5221		<a href="http://www.uta.edu/studentaffairs/judicialaffairs">www.uta.edu/studentaffairs/judicialaffairs</a>
Student Legal Services <i>Lower Level, University Center</i>	272-3771	272-5221		<a href="http://www2.uta.edu/attorney">www2.uta.edu/attorney</a>
Transcripts and Records <i>Room 129, Davis Hall</i>	272-2137	272-3223	registrar@uta.edu	<a href="http://www2.uta.edu/registrar">www2.uta.edu/registrar</a>
Veterans Benefits <i>Room 129, Davis Hall</i>	272-3373	272-7013	va@uta.edu	<a href="http://www2.uta.edu/vets">www2.uta.edu/vets</a>

\* For correspondence only. Application materials are not accepted by fax.

# Facilities for Advanced Studies and Research

## Office of Information Technology (OIT)

B09 Davis Hall • Box 19318 • 817-272-3666

<http://oit.uta.edu>

The Office of Information Technology is composed of a diverse group of people working to meet the technological needs of the U.T. Arlington campus community. We provide high-speed data network and computing resources for campus-wide instructional and research activities, as well as university business operations. Computing resources provided by OIT include 10 student computer labs, accounts on multi-user systems that provide access to compilers, programming tools, utilities, e-mail, telnet, file transfer, online documentation, Internet access and online student services. In-house IT professionals are available to provide assistance to students, faculty and staff.

OIT's 10 on-campus computer labs are strategically located throughout the campus to provide computer resources for all students. Labs are located within the Architecture Building, Business Building, Central Library (three facilities), Engineering Laboratory Building, Fine Arts Building, Nedderman Hall, Ransom Hall and University Hall. All of our facilities are networked and provide access to both U.T. Arlington systems and the Internet. These facilities allow students free laser printing; several feature color printing, scanning, and classroom facilities. Our premier facility, Ransom Hall, is open 24 hours a day, seven days a week. This three-story computing facility offers PCs running Microsoft Windows, Apple MacOS, and X-Windows terminals capable of connecting to our campus' computing servers. Ransom Hall also features numerous multimedia and networked computer classrooms for teaching purposes.

OIT supports multi-user large centralized as well as distributed client/server computing resources. The large centralized resources consist of:

1. A High Performance Computing cluster, dedicated to UTA's researchers, consists of high speed Alpha Servers and Intel servers running HP Tru64 UNIX and Redhat Linux. Numerous scientific and engineering applications software are available to researchers. Accounts on this system are offered to tenured or tenure-track faculty pursuing research for the University.
2. A Compaq AlphaServer 4000 5/400 with two EV56 processors, 1 GB of memory, and 74GB of RAID disk space. This system, called Omega, runs Digital UNIX and supports both teaching and research activities with various compilers, programming tools, utilities, databases and statistical packages. Accounts on this system are available upon request to all UTA students, faculty and staff.
3. A Compaq AlphaServer 4100 with four EV56 processors, 1 GB of memory, and 100GB of RAIS disk space. This system, called Epsilon, runs HP Tru64 UNIX and supports Oracle database management system. Accounts on this system are limited to those students enrolled in database classes.
4. A Sun Ultra Enterprise 3000 with two UltraSPARC processors, 4GB of memory, and 218GB of RAID disk space. This system, called Gamma, together with its 41 SUN Ultra 1 Model 170E workstations available in ACS's Computing Facility in the Engineering Laboratory Building, runs Sun Solaris 7. It provides programming tools, libraries, utilities, engineering application software, and full network connectivity to the Internet. Accounts

on this system are available upon request to all UTA students, faculty and staff.

The distributed client/server environment supports thousands of computers located on the desktops of U.T. Arlington's faculty and staff offices as well as in the student computer labs. Distributed client/server resources consist of many IBM Netfinity and Dell Power Edge servers running Microsoft Windows to serve as Exchange, SQL, SMS, and print/file servers. Together, these servers support the University's e-mail, desktop productivity and departmental applications.

OIT provides a high-speed data network within the U.T. Arlington campus as well as interconnections to major regional, national and international networks (e.g. Internet, THEnet, etc.).

OIT supports the administrative systems utilized by departments across campus, such as Graduate Admissions, Registrar, Student Records, Financial Aid, Student Financials, Graduate School, Police and Bursar. Students interact with the administrative systems through the use of SAM (voice response system), the Kiosk and Web Registration.

Additional information about OIT's computers, network and student computing facilities, as well as access to documentation and staff consultants is available at the Computing Services Help Desk on the first floor of the Central Library (817-272-2208, [helpdesk@uta.edu](mailto:helpdesk@uta.edu)). All OIT labs and resources are available to current U.T. Arlington students, faculty and staff.

## University Libraries

Box 19497 • 817-272-3000 • [www.uta.edu/library](http://www.uta.edu/library)

The UTA Libraries are one of the most important resources on campus for teaching and research. In addition to over 1 million physical volumes on the shelves, the Central Library, the Science and Engineering Library, and the Architecture and Fine Arts Library contain a rapidly growing collection of periodicals, documents, technical reports, microfilm, microfiche, motion pictures, sound recordings, videotapes, filmstrips, computer disks and maps. They have access to approximately 30,000 electronic journals.

The Libraries provide a full array of modern technological access to print and electronic information through the online catalog. Databases and full-text journals may be reached by any UTA IP connected computer on campus, such as faculty offices, Office of Information Technology (OIT) computer labs or dorm data ports, or any library computer, and off campus by logging on through the University modems or via proxy server.

The Libraries provide remote access to many electronic databases and online journals. Among the more popular databases are: Academic Search Premier, a scholarly, multidiscipline, full-text database with almost 4,000 journals; Lexis/Nexis Academic, which provides current news and law information; Business Source Premier, which provides full text for more than 2,800 scholarly business journals; ACM Digital Library, which indexes journals and proceedings of the Association for Computing Machinery; Factiva, which provides current news from journals and newspapers; IEEE, a vast collection of engineering journals; netLibrary, a searchable full-text access to thousands of electronic books; the Nursing Collections, a full text of 15 leading journals in both general and specialized fields; Academic Search Premier, a scholarly, multidisciplinary, full-text database with

collections of over 3,300 peer-reviewed full-text journals and indexing for another 2,000 titles; Project Muse and JSTOR, which are collections of full-image journals in the humanities and social sciences; and Science Direct, which provides full-text Elsevier and Academic Press journals. Find information about all of the databases at <http://www3.uta.edu/library/research/fulllist.asp>.

Staff in the Central Library's Information Services Department, the Science and Engineering Library, the Architecture and Fine Arts Library, and Special Collections provide assistance using the Libraries' collections. The business librarians have an Electronic Business Library in the Business Building to assist students and faculty with specialized business databases and collections. The Social Work Electronic Library (SWEL) is located in the Social Work complex, and an e-library is located at the UTA/Fort Worth campus. Productivity software is available on computers throughout the public areas of the libraries, and specialized equipment and software are available in some locations, such as GIS software in the OIT lab and in the Digital Media Classroom, where a specialized plotting printer can be used. The library has laptop computers available to check out from each Circulation Desk to use independently on the Libraries' wireless network or in conjunction with the Internet cafe data ports. Some of these laptops may be checked out for 24 hours.

The Central Library is responsible for the humanities, social sciences, business, nursing, education, geology, legal materials and government publications. The Government Publications and Maps Collection contains more than 900,000 publications of the United States government and international organizations. The Central Library also contains the MultiCultural Collection, a circulating and reference collection covering the political, social, cultural, economic, and intellectual history of Native Americans, African Americans, Asian Americans and Mexican Americans in the southwestern United States from U.S. Independence to the present. The Reading Resources Room provides a curriculum library and a collection of juvenile and young adult literature along with the McNaughton collection of popular fiction.

Special Collections contains the Jenkins Garrett Library of Texana and Mexican War material and the Virginia Garrett Cartographic History Library. Special Collections includes archives relating to UTA's history since 1895 and the history of organized labor in Texas and the Southwest. The Division also holds archives and newspapers of Yucatán, colonial archives of Honduras and collections relating to the political history of Texas. The division's historical photograph and negative collection, which includes approximately 3 million images of Texas dating from the 19th through most of the 20th centuries, is one of the best in the state.

The Science and Engineering Library is housed in the basement of Nedderman Hall. It includes materials pertinent to engineering, biology, physics, chemistry, and mathematics, including reference, circulating books, reserve, and periodicals.

The Architecture and Fine Arts Library is housed on the first floor of the Architecture Building. Its collection includes all materials pertinent to architecture, art, photography, and music, including reference, circulating books, reserve, periodicals, scores, musical records, cassettes, and compact disks. It houses a music listening lab.

Materials not available in the UTA Libraries may be borrowed from other libraries through the Interlibrary Loan Office, a unit of the Department of Access Services. The Central Library provides a microform collection with the reading/printing equipment. Taking into account space considerations of this research library, some important but infrequently-used volumes from the UTA Libraries

collection are retained in the collection but are located in remote storage and may be retrieved within a couple of days. For students, staff, and faculty the TexShare library card entitles the bearer to privileges in libraries of universities, law and medical schools, private and community colleges across Texas, as well as some public libraries.

Non-library services available at the Central Library include a first-floor Internet café called Sam's Click Café, a joint venture between the UTA Libraries and the Office of Information Technology. The OIT help desk, where students may set up new accounts, is in the café, and a coffee bar is nearby serving a large array of coffees, teas, soft drinks, and snacks. The café has 86 computer workstations, numerous laptop dataports, two state-of-the-art group study rooms, and overstuffed furniture in the relaxed and popular environment. A second quiet computer facility called Quiet Sam's is located on the fifth floor of the Central Library. Users will find a photocopy center located in the basement, and the English Department Writing Lab is available to all UTA students.

Additional library information may be obtained at any of the information or circulation desks of the three library locations. Regular library hours are posted, as are hours for semester breaks, holidays, summer terms, Winter Session, Maymester, and other special circumstances. For more information, visit us on the Web at [www.uta.edu/library/](http://www.uta.edu/library/). Administration Office, Room 611, Central Library, Box 19497, Arlington, TX 76019, E-mail questions may be addressed to [cenref@library.uta.edu](mailto:cenref@library.uta.edu).

## Center for Distance Education

201A E. Abram St. • Box 19104 • 817-272-5727  
<http://distance.uta.edu>

With the founding of U.T. Arlington's Center for Distance Education in 1997, the University has taken a leadership role within the U.T. System in the production of academic courses and degree programs for Internet delivery. Center staff work alongside faculty members to retool traditional classes and degrees for delivery to distant learners. U.T. Arlington undergraduate and graduate courses and programs are delivered off-campus in numerous electronic formats, including videotape, closed-circuit television and via the Internet. The center also serves as an information and coordination site for all distance education efforts at U.T. Arlington.

For more information on the Center for Distance Education, call 817-272-5727 or 888-UTA-DIST. Fax: 817-272-5728. E-mail: [info@distance.uta.edu](mailto:info@distance.uta.edu). Web site: <http://distance.uta.edu>.

## Engineering Center for Distance Education (ECDE)

242 Nedderman Hall • Box 19077 • 817-272-2352  
[www.uta.edu/engineering/distance](http://www.uta.edu/engineering/distance)

The Engineering Center for Distance Education was founded in 1982 to serve undergraduate and graduate level engineering courses to off-campus students. ECDE is actively sending courses via videotape and Internet streaming video.

Classes produced by ECDE are available online, and students registered in these classes may view the lectures at any time. Assignments are delivered and returned using e-mail, Web, fax or U.S. mail. Students take the exams off-campus at a convenient time with a proctor. All courses delivered by ECDE are fully accredited and cover the same materials and learning objectives as on-campus classes.

For more information or course availability via videotape or Internet streaming video, contact the U.T. Arlington Engineering Center for Distance Education office, Box 19077, Arlington, TX 76019. Phone: 817-272-2352 or 888-UTA-2352. Fax: 817-272-5630. E-mail: [erv@uta.edu](mailto:erv@uta.edu). Web site: [www.uta.edu/engineering/distance](http://www.uta.edu/engineering/distance).

## Oak Ridge Associated Universities (ORAU)

Since 1993, students and faculty of The University of Texas at Arlington have benefited from its membership in Oak Ridge Associated Universities. ORAU is a consortium of 88 colleges and universities and a contractor for the U.S. Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

Through the Oak Ridge Institute for Science and Education (ORISE), the DOE facility that ORAU operates, undergraduates, graduates, postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research. Students can participate in programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, geological sciences, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry and mathematics. Appointment and program length range from one month to four years. Many of these programs are especially designed to increase the numbers of underrepresented minority students pursuing degrees in science- and engineering-related disciplines. A comprehensive listing of these programs and other opportunities, their disciplines, and details on locations and benefits can be found in the *ORISE Catalog of Education and Training Programs*, which is available at [www.orau.gov/orise/educ.htm](http://www.orau.gov/orise/educ.htm), or by calling either of the contacts below.

ORAU's Office of Partnership Development seeks opportunities for partnerships and alliances among ORAU's members, private industry and major federal facilities. Activities include faculty development programs, such as the Ralph E. Powe Junior Faculty Enhancement Awards, the Visiting Industrial Scholars Program, consortium research funding initiatives, faculty research and support programs as well as services to chief research officers.

For more information about ORAU and its programs, contact:

Ronald L. Elsenbaumer  
Vice President for Research  
ORAU Councilor for The University of Texas at Arlington

Monnie E. Champion  
ORAU Corporate Secretary (865-576-3306); or

Visit the ORAU Home Page ([www.orau.org](http://www.orau.org))

## Research Centers, Divisions and Special Facilities

### Aerodynamics Research Center

The Aerodynamics Research Center at The University of Texas at Arlington provides modern test facilities for research and graduate educational programs in experimental aerodynamics, aerothermodynamics, propulsion and fluid dynamics. Experimental

simulation capabilities of the center span the complete flight spectrum from low to hypersonic speeds.

The Aerodynamics Research Center occupies a 1000-square-meter laboratory complex housing experimental test facilities, a control room, model shop, instrumentation lab and adjoining staff office complex. The principal laboratories consist of the Low Speed Wind Tunnel Lab; the High Speed Aerodynamics Lab containing transonic, supersonic and hypersonic wind tunnels, and a pulse detonation engine facility; and the Acropulsion Lab with an arc-heated tunnel. A pulse detonation rig is available. The center also engages in research into shape memory alloys for structural applications. The test labs are equipped with data acquisition and control systems and supported by flow visualization (schlieren and planar laser induced fluorescence using an excimer laser source) and force, pressure, and heat transfer measurement systems. Experimental research is complemented by numerical modeling.

Current research activities at the center include transonic flow phenomena associated with rotor blades on helicopters, hypersonic shock wave/turbulent boundary layer interactions, hypersonic plume flowfields and development of pulsed detonation engines. Other research areas include high-temperature gas dynamics, unsteady and transient flows, instrumentation development, and detonations and plasmas. Research is funded by federal and state agencies, and by industry.

For information, contact F.K. Lu, P.O. Box 19018, Arlington, TX 76019, 817-272-2603, e-mail: [lu@mae.uta.edu](mailto:lu@mae.uta.edu).

### Automation & Robotics Research Institute (ARRI)

The Automation & Robotics Research Institute is the premier manufacturing assistance, research, education and technology transfer center in the Southwest. The institute prides itself on its proven track record of performing world class research for customers, as well as its ability to transfer technology to industry quickly and effectively.

ARRI was conceived through an agreement among the Fort Worth Chamber Foundation, Newell & Newell (owners of Riverbend Business Park) and The University of Texas System. The Fort Worth Chamber Foundation raised \$6 million to fund construction, furnishings and equipment of the 48,000-square-foot research building and to provide capitalization funds for two endowed chairs. Newell & Newell donated a \$5 million, 18.5-acre tract at Riverbend for a research campus for U.T. Arlington, the first occupant being ARRI. The facility was completed and occupied in September 1987. The program has received line-item support from the Texas Legislature since 1985.

By utilizing the multidisciplinary resources of U.T. Arlington, the major engineering university in the Dallas-Fort Worth Metroplex, ARRI's mission is to improve the competitiveness of manufacturing and related enterprises through excellence in research and the sharing and deployment of knowledge. The vision of the Institute is to be the premier source of knowledge and innovative solutions for industry and society. This vision is being accomplished by undertaking contract work for industry, obtaining state and federal grants in manufacturing, conducting research and development programs funded by corporate members, showcasing manufacturing and distribution automation technology, and supporting an aggressive education and technology transfer program.

ARRI has established a rich environment of people, equipment, and know-how in manufacturing. It has relationships with a significant number of Texas companies and is building relationships with out-of-state companies. The Institute offers students the opportunity to obtain

hands-on expertise working on projects with experienced engineers. These projects include automated surface finishing, enterprise integration, materials handling, information systems, process automation, advanced controls and sensors, manufacturing system design and simulation, producibility, shop floor control, continuous enterprise improvement, ISO 9000, Lean Manufacturing and others.

In staffing, ARRI's emphasis is placed on the fusion of many talents. Multidisciplinary faculty and students, and ARRI's full-time professional staff combine their areas of expertise on specific joint projects with state-of-the-art vendor equipment deployed in a user-type environment.

ARRI has established the following programs to support cooperation with industry: Advanced Controls and Sensors; Enterprise Engineering; and Process Automation. ARRI also hosts the Texas Manufacturing Assistance Center, the Cross Timbers Procurement Center and the Small Business Development Center for Enterprise Excellence.

For more information, contact ARRI at 7300 Jack Newell Blvd. S., Fort Worth, TX 76118, or 817-272-5900, <http://arri.uta.edu>.

### Center for Advanced Polymer Research

The Center for Advanced Polymer Research is involved in the development of new polymeric materials for new applications. Research groups are focusing efforts in areas of electrically conductive polymers, electroluminescent polymers, ionic polymers for nonlinear optical applications, thin polymer films by self-assembly, potentially superconductive polymers, organometallic, dendritic polymers, ionically conductive polymers, plasma polymerization and other new methods for polymer processing, using graduate students, postdoctoral fellows and undergraduate students in research positions. Modern experimental facilities have been constructed that give the center state-of-the-art polymer characterization capabilities in high field nuclear magnetic resonance spectroscopy for solids and liquids, electron paramagnetic resonance, Fourier transform infrared spectroscopy, gas chromatography/mass spectrometry, gel permeation and high performance liquid chromatography, GPC with multiangle laser light scattering detector, optical and electron microscopy, thermal analysis, electrochemistry, electronic measurements, x-ray photoelectron spectroscopy, Raman spectroscopy, theoretical modeling, and carbon, hydrogen and nitrogen elemental analyses. Joint research programs exist both internally and with industrial and governmental laboratories. Doctoral candidates spend 4-6 months in industrial research internships as part of their degree requirements.

For information, contact Martin Pomerantz, Room 205, Chemistry Research Building, 817-272-3811, at the Department of Chemistry and Biochemistry, Box 19065, Arlington, TX 76019. FAX: 817-272-3808; E-mail: [pomerantz@uta.edu](mailto:pomerantz@uta.edu).

### Center for Biological Macrofouling Research

The Center for Biological Macrofouling Research enhances ongoing research programs in the biology, physiology, ecology and macrofouling control of exotic pest bivalves, including the Asian clam, *Corbicula fluminea*, introduced to North America from southeast Asia in the early 1900s; the zebra mussel, *Dreissena polymorpha*, introduced from Europe to North America in 1986; the marine brown mussel, *Perna perna*, introduced to Texas' Gulf of Mexico shores in 1990; and the green mussel, *Perna viridis*, introduced to Florida in 1999. Biofouling of water treatment, industrial and power-generating raw water systems by Asian clams costs the United States well over \$1 billion per year.

Fouling by zebra mussels (a more serious fouler) is conservatively estimated eventually to cost \$3 billion to \$4 billion a year as it spreads throughout North American freshwaters. Green mussels are rapidly spreading on Gulf of Mexico shores and causing biofouling problems. The center coordinates research efforts, develops new research initiatives, evaluates the efficacy of control measures and acts as a national clearing house for information on the biology and fouling control of these species to the U.S. power industry, potable water treatment plants, chemical companies and other industrial users of raw water. The center receives funding from the U.S. power industry, chemical companies, the U.S. Fish and Wildlife Service and the U.S. Army Corps of Engineers. The center seeks research funding and contracts from public and private sectors for its continued research on these species. Director: Robert F. McMahon, Room 206, Life Science Building, 817-272-3492, [r.mcmahon@uta.edu](mailto:r.mcmahon@uta.edu).

### Center for Colloidal and Interfacial Dynamics (CCID)

The objective of CCID is to facilitate and coordinate the research efforts of faculty, industrial associates, postdoctoral fellows and graduate students interested in rate processes in colloidal systems and at interfaces. Such processes are relevant in chemistry, physics, geology, bio- and environmental sciences, and many areas of engineering. Examples of the studies include the investigation of the rate and mechanism of the formation of colloidal particles and thin films, adsorption-desorption at interfaces, mass transport across membranes, molecular tailoring of surfaces via pulsed plasma deposition, photoelectrochemistry and photocatalysis, polymer films bearing colloidal catalyst particles, and improved biocompatibility of materials. State-of-the-art instrumentation includes X-ray photoelectron (XPS), laser Raman, diode-array UV-visible, and Fourier transform IR spectrometers, dynamic light scattering apparatus, several RF plasma reactors, quartz crystal microbalance, cyclic voltametry, electroanalytical, and thermal analysis (DTA, TGA, DMA) instruments. For rate studies on the nanosecond to millisecond time scale, stopped-flow, temperature-jump, pressure-jump, electric field-jump, laser-induced electric birefringence apparatus and rapid-scan time-resolved spectrometers are available. For information, contact: Zoltan A. Schelly, Department of Chemistry and Biochemistry, Box 19065, University of Texas at Arlington, Arlington, TX 76019-0065, USA. Phone: 817-272-3803. Fax: 817-272-3808. E-mail: [schelly@uta.edu](mailto:schelly@uta.edu). Web site: [www.uta.edu/chemistry/ccid.html](http://www.uta.edu/chemistry/ccid.html).

### Center for Composite Materials

The Center for Composite Materials promotes interdisciplinary research in composite materials among faculty, students, postdoctoral fellows, and staff. These materials include polymers, metals, polymeric matrix composites, metal matrix composites, and ceramic composites. Research programs involve multidisciplinary efforts between the Aerospace Engineering, Civil Engineering, Materials Science and Engineering, Mechanical Engineering, and Chemistry departments and graduate programs. Much of this research involves mechanics, structural modeling, and design as well as the interrelationships between the processing, structure, and properties of structural engineering materials. Available laboratories include shared composite materials laboratories, as well as laboratories within individual research departments or programs. Equipment and facilities used include servohydraulic mechanical testing systems, cabinet x-ray equipment,

ultrasonic damage detection, materials fabrication and processing facilities, high-temperature autoclaves, thermal analysis (DSC, TGA, TMA, DMA) systems, ultrasonic imaging system, optical and SEM/EDS and STEM/EDS electron microscopes, polymer synthesis and electrochemistry, polymer spectroscopy (NMR, FTIR, EPR, mass) and instrumented impact test facilities. For more information, please contact Wen S. Chan, Room 325G, Woolf Hall, 817-272-5638; Fax: 817-272-2952; E-mail: chan@mae.uta.edu, at the Mechanical and Aerospace Engineering Department, Box 19023, Arlington, TX 76019.

### Center for Criminal Justice Research and Training

The Center for Criminal Justice Research and Training was established in 1977 with the primary mission of providing technical assistance to law enforcement and criminal justice agencies, governmental institutions and citizens groups concerned with the administration and operation of the criminal justice system.

The center provides assistance when requested in the areas of program evaluation, personnel administration, organizational development, training, staff and program development, and other areas of organizational research. As part of the College of Liberal Arts, the center works cooperatively with other components of the University to develop effective community crime prevention models and to enhance community awareness of needed changes for the solution of crime problems. Director: Alejandro del Carmen, Room 303, University Hall, 817-272-3318.

### Center for Economic Development Research and Service (CEDRAS)

The mission of the Center for Economic Development Research and Service is to provide economic development service to governments, nonprofit organizations and businesses of North Central and Northeast Texas. CEDRAS provides technical assistance, conducts applied research through conferences and publications, and disseminates relevant and timely economic data and information. For information, contact Executive Director Sherman M. Wyman, Room 509, University Hall, 817-272-3359.

### Center for Electron Microscopy

The Center for Electron Microscopy provides facilities for research and training in electron microscopy and related techniques. Coursework and individual training are provided for approved undergraduate, graduate, postgraduate students, and faculty who wish to utilize electron microscopy and/or x-ray analysis in their research. The center is housed in a suite of rooms having three electron microscopes: JEOL JEM-1200EX TEMSCAN equipped with a Link AN10000 x-ray and image analysis system; JEOL JSM-35C SEM with Vitalscan digital imaging package, a Tracor Northern x-ray and image analysis system; JEOL T-300 SEM with Evex digital imaging package, back scatter and Tracor Northern x-ray analysis. Three PC-based image analysis systems utilizing SIGMA-SCAN PRO, NIH IMAGE, IMAGE-PRO PLUS, and METAMORPH are available for use with both light and electron image applications. The center has darkrooms and preparation and ancillary equipment. Research and training has involved faculty, visitors and students from biology, chemistry, geology, physics, psychology, anthropology, materials science and engineering. Director: Howard J. Arnott, Rooms. B24 or 241 Life Science Building,

817-272-2413, E-mail: arnott@uta.edu. or Martha Gracey, Research Engineer Associate, B24 Life Science Building, 817-272-2427, E-mail: martha@uta.edu.

### Center for Environmental Design Research (CEDR)

The center was established in 1979 as the consolidation of research activities of the School of Architecture. Its objectives are to develop investigative programs and stimulate research related to architecture, landscape architecture and interior design, especially in relation to Dallas-Fort Worth regional development. The faculty associated with the center identify appropriate governmental agencies, foundations, institutions, developers, and builders to facilitate the initiation and execution of research projects. For information, contact Dean Donald Gatzke, 817-272-2801.

### Center for Far Eastern Studies

The Center for Far Eastern Studies serves as a forum for research and exchange of ideas and information on issues and situations—political, economic, and cultural—related to the societies and peoples of the Far East. It purports to create, publish, and disseminate materials and to provide an organizational base upon which scholars from within and without the University may carry out their studies on issues and situations related to the Far East. Director: John J. S. Moon, 817-272-2991.

### Center for Greater Southwestern Studies and the History of Cartography

The primary purpose of the Center for Greater Southwestern Studies and the History of Cartography is to encourage interdisciplinary scholarship, research, and teaching that interprets the people, environment, economy, history, and cultures of the Greater Southwest. The Greater Southwest includes the southwestern quarter of the United States and the northern portion of Mexico, a vast region that has interconnected both countries in times of exploration, conflict, and cooperation. The center is located in the University Library, which houses a nationally recognized Special Collections (including maps, journals, and photographs) pertaining to the region. The faculty and students of the center research such topics as the significance of the Age of Discovery, the exploration and settlement of the New World and its impact on indigenous peoples, comparative frontier experiences, and the relationship between Southwestern cultures and environment and their implications for the future of the Greater Southwest.

The center operates several programs to foster a more complete understanding of the history and cultures of the region among students, scholars, educators, and the general public. Under the guidance of the center director, the center sponsors undergraduate and graduate curricular development; supports the Jenkins and Virginia Garrett Endowed Chair in Southwestern Studies and the History of Cartography and the Sandra Myres Graduate Research Assistant. The center also encourages the research of visiting scholars; conducts outreach programs through institutes for college level, elementary and secondary public school teachers; promotes community involvement through symposia, exhibits, lectures and public programs; and works actively with other national and international organizations having mutual interests in Southwestern Studies and the History of Cartography. Director: Richard V. Francaviglia, 817-272-3997.

### Center for High Energy Physics and Technology

The Center for High Energy Physics and Technology supports U.T. Arlington's participation in leading national and international particle physics experiments by providing the required detector development, detector construction, and computing facilities. The High Energy group participated in the 1995 discovery of the "top quark" by the D0 experiment at the Fermi National Accelerator Laboratory (Chicago), and has developed detector elements for the upgrade of the D0 detector. For the long term, the group is working on the development and construction of the ATLAS experiment detector at the Large Hadron Collider Facility in Geneva, Switzerland, and on detector development for the future International Linear Collider. Center facilities include high-performance, state-of-the-art computing systems, a well-equipped detector and electronics development laboratory, and an 11,000-square-foot detector construction facility at the Swift Center. Work at the center offers opportunities for research in experimental elementary particle physics ranging from detector design and simulation, software and electronics development, through full high-statistics physics analyses in the effort to understand matter and forces at their most fundamental level. Director: Andrew P. White, Room 241, Science Hall, 817-272-2811.

### Center for Hispanic Studies in Nursing and Health

The Center for Hispanic Studies in Nursing and Health is dedicated to fostering understanding between health care professionals and peoples of Hispanic origin for the purpose of increasing the quality of health care for these groups. The center is committed to increasing understanding of health and healing through research of individual experience, cultural meanings and the structure of institutions as important variables influencing health outcomes. The center is also dedicated to the provision of educational programs and services which will assist health care providers to gain the necessary knowledge and skills to deliver increasingly sensitive and competent care. The center promotes interdisciplinary and interuniversity collaboration as a strategy for development of resources to solve or deal with bicultural issues facing health care professionals. Contact: Mary Lou Bond, 817-272-5295.

### Center for Information Technologies Management

Rapidly developing information technologies are presenting information systems executives with the opportunity to provide timely, high-quality information to support decision-making and innovation in all areas of managing an enterprise. Major changes in the business environment, including globalization, corporate mergers, flexible manufacturing, cost paring and downsizing, are increasing the importance of information technologies as organizations struggle to compete and survive.

Advances in computer hardware, software, and communications are driving developments in computer applications across the board, including information processing, office automation, data base management, data communications, artificial intelligence, and systems development methodologies. Managers have to carefully gauge these trends, evaluate the implications for their own environment, and manage the harnessing of the appropriate information technologies.

The Center for Information Technologies Management (CITM) is dedicated to helping managers achieve these objectives. Sponsors and clients of the center benefit from research in a wide variety of important

fields, working papers, monographs, workshops, and symposia. Training and consultation for individual clients can be provided. The center has also secured several research grants from government and industry. Director: Phil Beck, Room 535A, Business Building, 817-272-3546.

### Center for International Research Education and Development (CIRED)

The Center for International Research Education and Development within the School of Urban and Public Affairs promotes the design and execution of research, curricula and educational projects through partnerships with academic and non-profit institutions abroad. Current collaborations exist with The Kharkiv Academy of Municipal Economy in Kharkiv, Ukraine, The Ukrainian Academy of Public Administration and The Serbian Academy of Public Administration. Future partnerships are anticipated with The University of Kragujevac, Serbia and The University of Montenegro, Montenegro. Personal development opportunities for both UTA faculty and students and their international counterparts exist through international conferences, seminars, long distance courses, a Web site and publications. For information, contact Director Sherman M. Wyman, Room 509, University Hall, 817-272-3359.

### Center for Mexican American Studies (CMAS)

Established in 1993, the center is part of the College of Liberal Arts. Its objectives are to promote and disseminate research on Mexican-origin and other Latino peoples, teach about the Mexican American experience and engage in community outreach on critical issues affecting the ethnic group and Latin America. The center supports graduate and undergraduate student research on these topics. It also offers a multidisciplinary undergraduate minor and creates awareness about Mexican American culture by hosting guest speakers and organizing conferences and other university events. Interim Director: Alejandro del Carmen. For information, contact: adelcarmen@uta.edu; CMAS, 3014 E.H. Hereford University Center, Box 19444, Arlington, TX 76019, 817-272-2933, fax 817-272-2948.

### Center for Nanostructure Materials and Quantum Device Fabrication

The Center for Nanostructure Materials and Quantum Device Fabrication is an organization of engineers and scientists working on the frontiers of advanced microelectronic applications. Other related activities include the development of tools designed to open pathways into nanoscale technologies. The center supports the Metroplex Research Consortium for Electronic Devices and Materials and is comprised of personnel from U.T. Arlington and the Texas Engineering Experiment Station. For information, call 817-272-5632.

### Center for Numerical Simulation and Modeling (CNSM)

The Center for Numerical Simulation and Modeling (CNSM) in the Department of Mathematics is an interdisciplinary research group composed of faculty members from Mathematics, Statistics, Mechanical Engineering, Aerospace Engineering and other departments. CNSM uses human and equipment resources efficiently to develop a nationally and internationally recognized center for world-class research, technology transfer, and innovative opportunities for higher education. The center actively encourages and seeks world-



class research on the most challenging problems, such as high-order shock capturing scheme, adaptive grid generation, multigrid, parallelization, direct numerical simulation (DNS) and large eddy simulation (LES) for flow transition, turbulence, wakes, flow control, cooling technology, environmental protection, and bio-mathematics. The center provides national scientific and high-tech services to NASA, Air Force, Navy, and services to universities and industries in North Texas. The kernel of the center is the Numerical Simulation Group (NSG). The NSG is known worldwide for its innovative work in conducting DNS for complex flow, a process thought impossible until just recently. The NSG's creative research work has received continuous and significant funding from the U.S. Air Force and Navy and from NASA. Over the past 12 years, Chaouq Liu, the leader of NSG, has received a total of 33 research grants worth over \$4.3 million. The NSG's current research work includes flow control, prediction of flow transition, wake prediction and control, cooling technology, laminar wing design, and environmental protection. The center is located on the fourth floor of Pickard Hall. For information, contact Chaouq Liu, Director, 817-272-5151. E-mail: cliu@uta.edu.

### Center for Nursing Research

The Center for Nursing Research, established in 1987, facilitates research related to extending the scientific base for nursing practice. Studies related to health services research, nursing administration, and nursing education are supported. Consultation services in grant writing, research methodology, statistical analysis, computer programming and data management are provided to faculty members, and collaboratively to health care agencies and/or members of their nursing staff. Students employed in the center are available for literature retrieval related to research, assistance with word processing, data entry and data analysis. Hardware and software are available for these activities. The center has access to equipment and personnel in the School of Nursing Learning Resources Center, including artists and photographers, and equipment which allows rapid development of professional quality slides, graphs, and tables for research publications and presentations. Current research foci include Hispanic health care, nursing practice outcomes and health promotion/illness prevention. Graduate assistantships are available for qualified candidates. For information, contact Carolyn L. Cason, Director, Box 19407, Arlington, TX 76019, 817-272-2776.

### Center for Post-Soviet and East European Studies

The Center for Post-Soviet and East European Studies was established in 1968 to coordinate all activities involving U.T. Arlington with that portion of Eastern Europe formerly designated as "Other Socialist Countries" as well as with the former USSR, including the three Baltic Republics and the 12 Commonwealth of Independent States. The center performs five functions: (1) **Research**—academic, political, linguistic, and economic activities; (2) **Interdisciplinary Studies**—classes have been and are constantly being developed integrating several disciplines such as history, political science, and Russian; or Russian and English; (3) **Translations**—English to Russian, Russian to English, or other translations at a reasonable fee are prepared, edited, and computerized at the request of commercial or academic clients; (4) **Exchange Programs**—Exchanges have been effected between U.T. Arlington and countries such as Russia, the former Yugoslavia, Romania, and Ukraine. In addition, the Director of the center serves as the official International Research Exchange (IREX) representative. Numerous former republics of the former USSR annually participate in this IREX program; (5)

**Study Abroad**—Since 1970 annual programs have been developed by the center. At present, travel/study programs are conducted during the first half of each summer to the former Soviet Union and during the last half of the summer to the Peoples Republic of China. Director: Charles McDowell, 221 Hammond, 817-272-2388.

### Center for Psychopharmacology Education and Research (CPER)

The Center for Psychopharmacology Education and Research (CPER) is committed to advancing the knowledge of psychopharmacology and related neurosciences. The center promotes the acquisition of this knowledge through education of Advanced Practice Registered Nurses (APRN's) and other health care professionals.

The center's objectives are: to provide education related to the use of psychopharmacologic agents in the treatment of persons with neurobiologic disorders/mental illness; to provide education related to research methods and findings in psychopharmacology and related neurosciences for APRN's; and to promote psychopharmacological research utilization and activities of APRN's. The center seeks collaborative relationships with educational, research and professional organizations. For more information, contact Co-Directors: Diane Snow and Mary Weber, UTA Box 19407, University of Texas at Arlington, Arlington, TX 76019-0407, Phone: 817-272-2776, Fax: 817-272-5006.

### Center for Research

The Center for Research promotes research by involving undergraduate and graduate students and faculty in identifying and studying key issues for the improvement of student learning and instructional practices and of human behavior through the study of fitness, sport performance, dance, health and aquatics. As part of the activities of the center, school leaders and U.T. Arlington students are prepared to be researchers and evaluators who carry out studies that connect theory with practice. These studies which are inquiry driven will demonstrate a questioning, reflective posture toward teaching and learning and have the potential to change existing practices and behaviors. Researchers test their assumptions regarding the potential for change based on the results from their studies in ways that support sustainable improvement in schools and in human behavior. These researchers provide rich insightful descriptions of educational, physiological, and psychological principles of human behavior and classroom life. These researchers use a variety of quantitative and qualitative methodologies that focus on teaching and learning, exercise science, sport, dance and health.

The knowledge that is produced will guide researchers toward systems thinking strategies. As they investigate relevant educational principles, important knowledge is produced which informs practice. The center is a depository for research analysis software and resources in conducting research on the Web site: [www.uta.edu/faculty/reinhart](http://www.uta.edu/faculty/reinhart). Director: Judy Reinhartz, 517 Hammond Hall, 817-272-2187.

### Center for Research, Evaluation and Technology (CRET)

The Center for Research, Evaluation and Technology, a component of the School of Social Work, was established to conduct applied social research to improve the design, delivery, management, and evaluation of human services. Its goals are to further understanding of human behavior and social conditions, to develop methods for analyzing and

evaluating human services programs and interventions, and to provide technical assistance to human services providers. The CRET provides a focus for social welfare research by identifying research issues and identifying and facilitating faculty and graduate students in the conduct of social welfare research. For information, contact center Director Charles H. Mindel, 817-272-3910.

### Center for Research on Organizational and Managerial Excellence (CROME)

The Center for Research on Organizational and Managerial Excellence (CROME) is within the Department of Management in the College of Business Administration. The center's primary purposes are to promote faculty and graduate student basic and applied research addressing the important and complex challenges faced by managers; to promote greater interaction between the University and industry in seeking solutions to these managerial problems; and to gain support from industry, government, and/or private foundations for critical managerial research. The intent of the center is to build stronger ties with external constituents, support faculty research and graduate programs, provide a community service, and add to the positive external image of the College of Business Administration and the University. Research is conducted in all areas of management, including corporate strategy, human resource management, international management, labor relations, organizational behavior, and entrepreneurship. Examples of current research through the center are establishment of methods for improving employee motivation; means of effectively managing diversified corporations; means of measuring corporate performance for strategy development and implementation; development of effective leadership approaches; employee participation in the management of a firm; and managerial prevention of stress. Interim Director: Jeffrey E. McGee, 209 Business Building, 817-272-3166.

### Center for Science Education

The Center for Science Education, a collaborative project between the College of Education and the College of Science, addresses critical issues in PreK-16 education in science, mathematics and technology (SMT). The center provides continuing and sustained professional development for future and current science, mathematics and technology teachers, and it increases the capacity of the University to educate future generations of SMT teachers and other school professionals in both the content and pedagogy of effective teaching and learning. Contact: Dean Jeanne Gerlach, 817-272-5476.

### Center for Social Research

The Center for Social Research was established in 1977 as a research component of the Department of Sociology. Participants in the center have doctoral or professional degrees. The purpose of the center is to stimulate research, especially that which will be both of significance to the field of sociology and of service to various institutions, agencies, and organizations in the community and the state. The center is the channel through which grants for research can be obtained. It provides funding to support faculty research and graduate student training. Areas of ongoing research activity include: marketing research, welfare policy and research evaluation, substance abuse, crime and corrections, health care delivery systems, and studies in family violence. Director: Frank J. Weed, Room 447, University Hall, 817-272-2661.

### Center for Theory

The Center for Theory, established in 1999, brings together faculty and graduate students from UTA, UCLA and Virginia Tech. Using the Internet, scholars and students interactively explore the impact of information and communication technologies, on self, society, and culture in the 21st century. Regular colloquia are offered at UTA. The center is also launching an electronic journal, *Fast Capitalism* ([www.uta.edu/fastcap](http://www.uta.edu/fastcap)), which will publish scholarship on these issues. Please consult our home page at [www.uta.edu/center-for-theory](http://www.uta.edu/center-for-theory). Director: Ben Agger, 218 University Hall, 817-272-2640, [agger@uta.edu](mailto:agger@uta.edu).

### Center for Transportation Studies

Transportation is a highly multidisciplinary field encompassing disciplines including civil engineering, operations research, systems engineering, electrical engineering, city planning, human factors and computer science. The objective of this center is to facilitate research and training activities in transportation through bringing together faculty expertise. Activities include observational, experimental and basic research in transportation, particularly research related to the various aspects of Intelligent Transportation Systems, transportation systems analysis and planning, and public transit planning and operations. Director: James C. Williams, Room 429, Nedderman Hall, 817-272-2894.

### Community Services Center

The Community Services Center is an instructional facility operated by the School of Social Work that provides a university-community partnership addressing community issues. The partnership enables university students, faculty and neighborhood organizations to work together to tackle complex socioeconomic issues facing the neighborhoods that surround them, such as poverty, domestic violence, homelessness and community revitalization. The purpose of the center is twofold: to provide professional training for graduate students and to provide professional and responsible services to the community. Community development interns conduct needs assessments, write grant proposals, design new programs, conduct evaluations, perform research and organize action groups. Community clinic interns provide affordable counseling for children, adolescents and families. Counseling services include individual counseling, marriage counseling, premarital counseling, family therapy, group counseling, anger control therapy and social skills training. The community clinic also provides graduate interns an opportunity to conduct research programs in the area of counseling. Director: Deborah DeLay, 817-272-3918.

### Construction Research Center

The Construction Research Center is engaged in research and educational activities that support the construction industry. The research programs generally include the departments or colleges of Civil and Environmental Engineering, Architecture, Mechanical Engineering, Industrial Engineering, Geology, Economics, and Business Administration. The specified areas of study range from light foundations to the econometrics of the construction industry. Seminars, special courses, and special programs are held for their educational values and for the purposes of disseminating research.

The center is supported by the Construction Research Advisory Committee, which is composed of general contractors, home builders, financial institutions, building material manufacturers and suppliers. Director: John H. Mathys, Room 439, Nedderman Hall, 817-272-3701.

## Electronics, MEMS and Nanoelectronics Systems Packaging Center (EMNSPC)

EMNSPC seeks to increase the performance and reliability of systems by focusing on thermo/mechanical and materials technology. Its mission is to establish a first-class research center that will meet the needs of industry, in particular, the state of Texas and the North Texas region's electronic packaging industry. This includes research, education and training. As part of its mission, the EMNSPC has established a "Certificate in Electronic Packaging" program. Upon request, the center is also quite flexible in establishing "short courses" that meets the needs of the dynamic industry. For more information, call 817-272-7371 or visit <http://maepro.uta.edu/emtspc>.

## Energy Systems Research Center (ESRC)

The Energy Systems Research Center sponsors research concerning electrical power generation, transmission, distribution, energy service provider, qualified scheduling entity, and the deregulation of the electrical power industry. The center's research is pertinent to the utility industry and is readily applicable to the daily concerns of all practicing engineers. Established in 1968, the ESRC is the largest center of its type and is recognized as one of the most important research centers of its kind in the United States. The ESRC offers a three-phase program of study to serve undergraduate, graduate, and continuing education students. On the undergraduate level, six new power courses have been devised and added to the electrical engineering curriculum. The well-established graduate program supports thirty-five full-time students and ten full-time staff members. The ESRC also supports a relatively large postdoctoral program that requires at least some industrial experience for candidacy. Postdoctoral fellows may assist ESRC students in thesis or dissertation and in graduate seminars; fellows may be asked to perform limited teaching on the graduate level. The ESRC also accepts international exchange scholars from programs such as the Fulbright and IREX. Each year, researchers from different countries join the ESRC to aid in the research effort and to share their knowledge and experience in graduate seminar discussions. These researchers also contribute to the ESRC's special non-degree graduate programs as well as the in-plant and on-campus continuing education programs for practicing power system engineers.

ESRC has completed the construction of a modern power-system laboratory to demonstrate the concept of total automation of the power industry in the future. This laboratory is being used for the training of system operators for power industry and cogeneration companies. This lab is also being used for research on transient, dynamic, and voltage stability of electrical power systems. One of the major efforts of ESRC is to develop the methodology for preventing power system blackouts. This is one of the very few laboratories in the world capable of demanding a real-time behavior of an electrical power system network. ESRC also has an additional facility for digital simulation of a power system particularly designed for operator training, congestion management and ancillary services in deregulated power systems. Graduate assistantships, fellowships, and postdoctoral fellowships are available for qualified candidates. Director: Wei-Jen Lee, Room 100B, Engineering Annex Building, 817-272-2268.

## English Language Institute (ELI)

The English Language Institute is a center for instruction of English for speakers of other languages (ESOL) and is connected to the Linguistics department. The purpose of the ELI is to enhance this department in the areas of pedagogy and research for English for

speakers of other languages. To this end, the ELI offers an intensive English program to international students desiring to prepare themselves for university study. The intensive English program also serves as an ESOL research and teaching laboratory for faculty and graduate students. As an extension of its concern with ESOL instruction, the English Language Institute provides developmental instruction in ESOL to international students enrolled at U.T. Arlington. Director: Keith Maurice, Room 402, Hammond Hall, 817-272-2730.

## Fort Worth Federal Records Center

The Fort Worth Federal Records Center, a branch of the National Archives, is a valuable resource center for faculty and students in the Department of History. It has voluminous primary sources concerning the Bureau of Indian Affairs, government agencies, and Federal Courts. The center also has a comprehensive microfilm collection of government records located at the National Archives in Washington, D.C. For other research centers valuable to history students, see the section on the Library, especially the descriptions of the Jenkins Garrett Collection, the Regional Historical Resource Depository, the Division of Archives and Manuscripts, the Minority Cultures Center, and the Center for Greater Southwestern Studies and the History of Cartography. For information, contact Richard Francaviglia, 650 Central Library, 817-272-3997.

## The Gallery at UTA

The Gallery at UTA is devoted to the advanced study of contemporary art and seeks to facilitate research by contemporary artists. Basic to The Gallery's philosophy are the ideas that artistic practice is a form of research which is manifested in the artwork, and that parallel to the artwork is the dialogue that generates the work, and is generated by, and around, the work. Activities include exhibitions, lectures and publications. For information, contact the curator, Room 330, Fine Arts Building, Box 19089, 817-272-3143 or 272-5658. Web site: [www.uta.edu/gallery](http://www.uta.edu/gallery).

## Geotechnical Laboratory Testing Facilities

The University of Texas at Arlington Geotechnical Laboratory facilities include three laboratories, covering a total area of 5,230 square feet. The laboratories are equipped with six consolidation, two automated consolidation, three static triaxial, one cyclic triaxial, two direct shear, one torsional shear, one resonant column, three triaxial hydraulic conductivity, and one high pressure hydraulic conductivity and pressure plate test devices. These devices can be used to conduct permeability tests, shear strength tests, shear moduli tests, and standard and modified consolidation tests on both natural and stabilized soil samples. In addition, the University has equipment that can be used for conducting expansive soil characterization and mineral identification testing. Most of the tests are automated with data acquisition modules and software. All of the equipment is used in research studies on various geotechnical related topics, including expansive soil characterization, soil stabilization and geosynthetic reinforced soils. For more information, contact Anand J. Puppala, Box 19308, Arlington, TX 76019, 817-272-5821.

## Human Performance Institute (HPI)

The Human Performance Institute is dedicated to using multidisciplinary scientific bases for human performance measurement, understanding, and enhancement. The institute was formed to integrate several aspects of ongoing research in human performance

measurement and to launch a major effort in response to both clearly identified and emerging needs. HPI developed as an outgrowth of the Center for Advanced Rehabilitation Engineering which was established in 1983. The mission of the institute is to define a systematic approach to the measurement and understanding of intrinsic parameters and laws which govern the ability of individuals to perform tasks in daily life, as well as to provide education, promote and conduct research, and serve as a resource in this area. Basic and applied research addresses populations ranging from the severely handicapped through normal individuals and super athletes, reflecting a view of performance as a common theme to all human endeavors. Systems performance theory concepts developed by investigators are also being applied to the engineering design process. Human performance engineering methods are being developed to allow optimum design of the devices and tools people use. These tools may include a wide range of items such as wheelchairs, high performance military aircraft, robot, computer system, or intelligent software.

The HPI includes a multidisciplinary team locally and at collaborating institutions of engineering, life science, and clinical investigators. Local affiliations exist with The University of Texas Southwestern Medical School Center for Minimally Invasive Surgery, Texas Woman's University School of Physical Therapy, University of North Texas School of Music, and Presbyterian Hospital of Dallas. Other affiliations exist with similar organizations nationally. Graduate students pursuing study in engineering disciplines carry out thesis and dissertation research under faculty supervision. Their efforts are supported by laboratory facilities which include instrumentation and measurement development, a human performance "proving grounds," signal processing and data management, and artificial intelligence/expert systems. For further information, contact G. Kondraske, Director, 817-272-2335.

### International Linguistics Center (ILC)

The International Linguistics Center (ILC) is home to both SIL International (SIL) and the Graduate Institute of Applied Linguistics (GIAL), two non-profit organizations that conduct research and provide training of interest to linguists, translators, missionaries, anthropologists, literacy workers, bilingual educators, government officials, and others. Since the 1970s, U.T. Arlington has entered into a series of contractual agreements with SIL and GIAL such that many of the linguists based at the ILC hold appointments at U.T. Arlington as Special Members of the Graduate Faculty. The most current agreement also specifies terms for credit transfer between U.T. Arlington and GIAL. The ILC is located approximately 14 miles from U.T. Arlington, one mile west of Duncanville, at 7500 West Camp Wisdom Road, Dallas.

For more information about the ILC and its relationship to U.T. Arlington, contact the Chair of the Department of Linguistics and TESOL, David J. Silva, 403 Hammond Hall, 817-272-3133. Information specific to SIL can be obtained at [www.sil.org](http://www.sil.org); information about GIAL is available at [www.gial.edu](http://www.gial.edu).

### Inter-University Consortium for Political and Social Research (ICPSR)

The Inter-University Consortium for Political and Social Research is a data collection and dissemination service sponsored by the University of Michigan and supported by universities located in countries throughout the world. The University's membership in the

consortium provides faculty and students free access to the largest accumulation of computer-processed and retrievable data available anywhere in the world. A brief sample of the topics covered include census enumerations, urban studies, economic behavior, education, health care, mass political behavior, social institutions, and criminal justice statistics. For more information visit ICPSR's World Wide Web site at [www.icpsr.umich.edu](http://www.icpsr.umich.edu) or contact Michael K. Moore, 817-272-3996, [mmoore@uta.edu](mailto:mmoore@uta.edu).

### Judith Granger Birmingham Center for Child Welfare

The Judith Granger Birmingham Center for Child Welfare serves as a research and resource center for Texas, the Southwest, and the nation in the advancement and dissemination of knowledge to improve the conditions of vulnerable children and their families. Research, education and dissemination efforts address the basic rights of children to be nurtured and protected by their family.

Since its inception in 1994, the overarching goal of the center is to help equip child welfare practitioners with current, detailed and scientific knowledge about effective practice models, ways to support the adequate development of children and families, and strategies to preserve families. The foundation of knowledge in the past 30 years has resulted in an extensive body of research concerning the causes and correlates of risk in parent-child relationships, practice models that can ameliorate these risk factors for families, and concrete steps in decision making that can identify the most appropriate services to achieve positive outcomes for children.

The center is housed at the School of Social Work. The school is uniquely qualified as the site of the center because of the combination of a nationally recognized faculty with expertise in child welfare practice innovations, technology development and a long-standing partnership with child welfare practitioners at the local, state and national level.

### Natural History Specimen Building

The natural history collection was established by the Department of Biology in 1956 primarily as a teaching resource to support classroom and field instruction. Since then it has grown into an internationally recognized research facility and serves the needs of faculty and students, as well as national and international scholars. The collection is particularly strong in its herpetological holdings, which include some of the world's largest collections from Texas and the countries of Cameroon, Colombia, Guatemala and Mexico. Various ancillary materials are available, including voice recordings for many species of tropical frogs, publications, color transparencies, field notebooks and catalogues, and maps. The collection houses about 60,000 amphibians and 50,000 reptiles, and includes about 60 holotype specimens.

The Natural History Specimen Building is located at 910 S. Davis Street. Qualified investigators conducting research on vertebrates are welcome to use the collection's facilities and materials which are located in the Life Sciences Building. For information, contact Jonathan A. Campbell, Curator, 337 Life Science, 817-272-2406 ([campbell@uta.edu](mailto:campbell@uta.edu)).

### Ryan Center for Urban Land Utilization

The center was established in 1983 with the aid of a grant from John Ryan and Michael Reilly. The major purpose of the center is to enhance and support the quality of real estate education in the Dallas/

Fort Worth Metroplex. For more information, contact David Diltz, Finance and Real Estate Department, Room 434, Business Building, 817-272-3705, 817-272-2252 (fax).

### School of Urban and Public Affairs Urban Training and Service

An objective of the Training and Service Programs is to draw on the knowledge and skill of school faculty and staff to provide guidance and assistance to Texas public agencies and other community groups striving to deal with changing political, economic and social conditions. The faculty provides a variety of services directly to agencies or other groups requesting assistance and facilitates the work of other school faculty and staff members while conducting training or delivering services. For information, contact David Tees, Room 501B, University Hall, 817-272-3304.

### Software Engineering Research Center

The Software Engineering Research Center (SERC) was established in 1988 to develop advanced research programs at U.T. Arlington in the formulation and investigation of software engineering concepts. It is also to facilitate the transition of software technology to industry and government. Emphasis is placed on carrying fundamental ideas in software engineering from conceptualization through exploration and realization of prototype software engineering environments, and experimental applications in conjunction with industry and government.

Since its inception, SERC has worked with numerous high tech companies on software engineering, telecommunications and Internet projects. The OOTWorks software testing and maintenance product has been licensed to many companies including Fortune 500 companies.

The center is within the Computer Science and Engineering Department. Director: David Kung, Box 19015, Arlington, TX 76019, 817-272-3785.

### Structural Research Laboratory

The Structural Research Laboratory is engaged in research in the areas of structural testing and experimental mechanics. The laboratory is actively involved in full scale tests of concrete, masonry, steel and composite structural components. Graduate students and advanced undergraduate students conduct research in the laboratory. Available facilities include 200-ton hydraulic testing systems, 100-K MTS testing machine, 30-foot high reaction frame, 3000 square feet testing floor, 40 different sizes portable hydraulic rams, two forklifts, and computerized data acquisition systems. The laboratory also operates two environmental control rooms for use in creep investigation of high strength concrete and structural composites. For information, contact John H. Matthys, Box 19308, Arlington, TX 76019, 817-272-3701.

### Wave Scattering Research Center

This center was established in 1984 to conduct theoretical, experimental, and computer simulation research in electromagnetic wave scattering and attenuation from area extensive scenes such as soil, snow, ice, and forested areas, sea surfaces, etc. and artificial canopy models and from objects such as antennas, ships, etc. In addition, the

center also conducts research in radar systems, and microwave imaging of man-made terrains and buried objects. The center has an anechoic chamber to conduct controlled bistatic and monostatic measurements of man-made targets. A unique feature of the chamber is that it incorporates a hemispherical structure with 25 receiving horns at the target end of the chamber to allow bistatic measurements to be acquired without having to change or realign any receiving or transmitting antenna. The transceiver includes a HP 8510 network analyzer for recovery of calibrated amplitude and phase information. The source is a phase locked frequency synthesizer operating from two to 18 GHz. It also has a bistatic optical scattering system operating at wavelengths from 400 nm to 1700 nm and a millimeter wave spectrometer to monitor air pollution. For information, contact Adrian K. Fung, 252 Nedderman Hall, Box 19016, Arlington, TX 76019, 817-272-3422.

### Women and Minorities Research and Resource Center

The Women and Minorities Research and Resource Center was formed in 1989 with two primary purposes. First, the center supports, encourages and disseminates scholarship about women and minorities. This is accomplished primarily through the center's sponsorship of Women's History Month and an annual faculty lecture series. Second, the center provides service to the community on issues related to women and minorities. This is accomplished by maintaining archives of materials on women and minorities, providing speakers for community groups and sponsoring public lectures.

The center also sponsors career workshops, conferences on issues related to women and/or racial and ethnic minorities, and consulting services to community groups. Finally, the center functions as a grant-seeking office and as a resource for individuals and departments seeking grants in areas related to women and/or minorities. The center is located in Room 223 University Hall. Director: Beth Anne Shelton, Women and Minorities Research and Resource Center, Box 19599, Arlington, TX 76019, 817-272-3131, Fax 817-272-3117.

## Publications

### Publications in Linguistics

Publications in Linguistics is a joint University of Texas at Arlington-SIL International monograph series published approximately four times a year. The series was begun in 1958 primarily as a publishing outlet for linguistic field workers who collect data concerning heretofore unwritten or undescribed languages and has expanded to include a wide range of content within the field of descriptive linguistics. Monographs range from descriptive studies of the linguistic structures of little-known languages to occasional comparative studies of some of the major languages. Editors: Mary Ruth Wise (SIL International) and Donald A. Burquest (U.T. Arlington), 972-708-7400.

### Stochastic Analysis and Applications

This international journal, *Stochastic Analysis and Applications* (Marcel Dekker), affords students and faculty the opportunity to play a role in an important area of mathematical sciences. Editor: G.S. Ladde, 817-272-3261.

## Terrae Incognitae

*Terrae Incognitae* is the journal of the Society for the History of Discoveries, published annually out of the Department of History. This journal began publication in 1969 and includes material relating to intercultural contact, mainly between European and other peoples. It also contains an annual review of the literature, and a section of book reviews. Editor: David Buisseret, University Hall 331, 817-272-2898.

## Walter Prescott Webb Memorial Lectures

The lectures, inaugurated in 1965, are delivered each spring in honor of Texas' most distinguished historian, Walter Prescott Webb. Now considered among the most prestigious history lecture series in the country, the Webb Memorial Lectures give graduate students and others the opportunity to meet and to hear some of the nation's outstanding historians. The four Webb lectures—along with the winning essay of the Webb-Smith Essay Competition—are then published for the History Department by Texas A&M University Press. Chair: Joyce Goldberg, University Hall 330, 817-272-2863 or goldberg@uta.edu.

## Short Courses, Conferences and Special Programs

### Graduate Studies in Environmental Science and Environmental Engineering

Students are provided opportunities to pursue graduate degrees in environmental science and engineering and in civil engineering with an emphasis in environmental engineering. Graduate courses and research programs provide educational opportunities that focus on resolving a broad array of current and future environmental problems.

The Graduate Program in Environmental Science and Engineering offers thesis and nonthesis M.S. degrees and a Ph.D. degree. It also offers 15-hour certificate programs in environmental science and hazardous materials and waste management. Information can be obtained by phone at 817-272-2405 or by e-mail at grover@uta.edu.

Information on graduate opportunities between the College of Science and College of Engineering can be obtained by calling the advising offices in the Department of Biology, 817-272-2405, or the Department of Civil and Environmental Engineering, 817-272-2201. Opportunities for studies in geographical information systems and environmental policy and planning are offered through the School of Urban and Public Affairs, 817-272-3071. Programs of work consisting of courses across many disciplines can be developed through the Program in Interdisciplinary Studies, 817-272-2681.

Research opportunities and continuing professional education courses (non-credit) are offered by several centers. These include the Center for Biological Macrofouling Research, Center for Environmental Research and Training, Center for Geoenvironmental and Geoarcheological Studies, and the Environmental Institute for Technology Transfer. Information on these centers can be found under Research Centers, Divisions and Special Facilities in this catalog.

## Power Systems Short Courses

Because of the deregulation of the electrical power industry, the Energy Systems Research Center (ESRC) has designed several courses in generation, transmission-distribution, energy service, qualified scheduling and energy trading in power systems. The short course in generation will emphasize load forecasting and the application of neural networks to power marketing. The transmission-distribution course will focus on power system reliability. The subjects of power system stability and reactive power planning will be major topics in congestion management, ancillary services and qualified scheduling. The energy service course will emphasize future distribution systems, which will offer flexibility in the choices for the customer. These courses are offered any time during the year upon request.

The "Modeling and Analysis of Modern Power Systems" short course has been presented annually by the Energy Systems Research Center (ESRC) for more than 33 years. It is the longest-running course of its kind in the power field and has attracted engineers from as many as 50 states, 42 countries and 352 companies. It is an intensive two-week course that is continually updated to reflect the most advanced concepts and practices in planning, design and operation of electrical power systems.

In addition, the ESRC offers the following continuing education courses for the power industry:

1. Utility Deregulation, Power Marketing and Congestion Management
2. Power Flow Analysis and Locational Marginal Price
3. Power System Operations and System Reliability
4. Power System Dynamics
5. Reactive Resource Planning and Voltage Stability
6. Short Circuit Analysis, Relay Coordination and System Protection
7. Renewable Energy, Distributed Generation and Micro Grid
8. Computer Based Power System Measurement, Monitoring, Control and Protection
9. Power System Interconnections
10. Programmable Logic Controllers (PLC) and Industrial Automation
11. Courses for Non-Power Engineering Professionals
  - Introduction to Electrical Power Systems and Power System Operation
  - Fundamentals of Power Engineering
  - Fundamentals of Supervisory Control and Data Acquisition (SCADA) and Energy Management System (EMS)
  - Power System Design
  - Power System Protection

Some of these courses will involve hands-on activities or demonstration in the physical simulation laboratory. All of these courses can be offered anytime during the year upon request.

Dr. Wei-Jen Lee, professor of Electrical Engineering and director of the Energy Systems Research Center, is responsible for the courses and is aided by members of the Electrical Engineering Department and the Energy Systems Research Center staff. Director: Wei-Jen Lee, Room 100B, Engineering Annex Building, 817-272-2268.

# Advanced Degrees and Requirements

The University of Texas at Arlington offers the following graduate degrees in the areas of study and through the departments and programs indicated.

Departments/Programs	Areas of Study and Degrees	Departments/Programs	Areas of Study and Degrees
Accounting	Accounting, <i>M.S.</i> Business Administration, <i>Ph.D.</i> Professional Accounting, <i>M.P.A.</i> Taxation, <i>M.S.</i>	Humanities	Humanities, <i>M.A.</i>
Aerospace Engineering	Aerospace Engineering, <i>M.S., M.Engr., Ph.D.</i>	Industrial Engineering	Industrial Engineering, <i>M.S., M.Engr., Ph.D.</i> Logistics, <i>M.S.</i>
Anthropology	Anthropology, <i>M.A.</i>	Information Systems and Operations Management	Business Administration, <i>M.B.A., Ph.D.</i> Information Systems, <i>M.S.</i> Mathematical Sciences, <i>Ph.D.</i>
Architecture	Architecture, <i>M.Arch.</i> Landscape Architecture, <i>M.L.A.</i>	Interdisciplinary Studies	Interdisciplinary Studies, <i>M.A., M.S.</i>
Biology	Biology, <i>M.S.</i> Quantitative Biology, <i>Ph.D.</i> Mathematical Sciences, <i>Ph.D.</i>	Landscape Architecture	Landscape Architecture, <i>M.L.A.</i>
Biomedical Engineering	Biomedical Engineering, <i>M.S., Ph.D.</i>	Linguistics and TESOL	Linguistics, <i>M.A., Ph.D.</i> Humanities, <i>M.A.</i>
Business Administration	Business Administration, <i>M.B.A., Ph.D.</i> Online Master of Business Administration, T.M.B.A.	Teaching English to Speakers of Other Languages, <i>M.A.</i>	Business Administration, <i>M.B.A., Ph.D.</i> Human Resource Management, <i>M.S.</i>
Chemistry	Chemistry, <i>M.S., Ph.D.</i> Mathematical Sciences, <i>Ph.D.</i>	Management	Business Administration, <i>M.B.A., Ph.D.</i> Marketing Research, <i>M.S.</i>
City and Regional Planning	City and Regional Planning, <i>M.C.R.P.</i>	Marketing	Business Administration, <i>M.B.A., Ph.D.</i>
Civil and Environmental Engineering	Civil Engineering, <i>M.S., M.Engr., Ph.D.</i>	Materials Science and Engineering	Materials Science and Engineering, <i>M.S., M.Engr., Ph.D.</i>
Communication	Communication, <i>M.A.</i>	Mathematics	Mathematics, <i>M.A., M.S.</i> Mathematical Sciences, <i>Ph.D.</i>
Computer Science and Engineering	Computer Science, <i>M.S., M.C.S., Ph.D.</i> Computer Science and Engineering, <i>M.S., M.Engr., Ph.D.</i> Mathematical Sciences, <i>Ph.D.</i> Software Engineering, <i>M.S.W.Engr.</i>	Mathematical Sciences	Mathematics, Applied Mathematics, <i>Ph.D.</i>
Criminology and Criminal Justice	Criminology and Criminal Justice, <i>M.A.</i>	Mechanical Engineering	Mechanical Engineering, <i>M.S., M.Engr., Ph.D.</i>
Economics	Economics, <i>M.A.</i> Business Administration, <i>Ph.D.</i>	Modern Languages	Modern Languages, <i>M.A.</i> Spanish, <i>M.A.</i> Humanities, <i>M.A.</i>
Education	Curriculum and Instruction, <i>M.Ed.</i> Educational Leadership and Policy Studies, <i>M.Ed.</i> Exercise Physiology, <i>M.S.</i> Teaching, <i>M.Ed.T.</i>	Music	Music, <i>M.M.</i>
Electrical Engineering	Electrical Engineering, <i>M.S., M.Engr., Ph.D.</i>	Nursing	Nursing, <i>M.S.N., Ph.D.</i>
Engineering Management	Engineering Management, <i>M.S.</i>	Physics	Physics, <i>M.S.</i> Physics and Applied Physics, <i>Ph.D.</i>
English	English, <i>M.A., Ph.D.</i> Humanities, <i>M.A.</i>	Political Science	Mathematical Sciences, <i>Ph.D.</i> Political Science, <i>M.A.</i> Humanities, <i>M.A.</i>
Environmental Science and Engineering	Environmental Science and Engineering, <i>M.S., Ph.D.</i>	Psychology	Psychology, <i>M.S.</i> General Experimental Psychology, <i>Ph.D.</i> Mathematical Sciences, <i>Ph.D.</i>
Finance and Real Estate	Business Administration, <i>M.B.A., Ph.D.</i> Real Estate, <i>M.S.</i>	Public Administration	Public Administration, <i>M.P.A.</i>
Geology	Geology, <i>M.S.</i> Mathematical Sciences, <i>Ph.D.</i>	Real Estate	Real Estate, <i>M.S.</i>
Health Care Administration	Health Care Administration, <i>M.S.</i>	Science	Interdisciplinary Science, <i>M.A.</i>
History	History, <i>M.A., Ph.D.</i> Humanities, <i>M.A.</i>	Social Work	Social Work, <i>M.S.S.W., Ph.D.</i>
		Sociology	Sociology, <i>M.A.</i> Humanities, <i>M.A.</i>
		Urban and Public Affairs	Urban Affairs, <i>M.A.</i> City and Regional Planning, <i>M.C.R.P.</i> Public and Urban Administration, <i>Ph.D.</i> Urban Planning and Public Policy, <i>Ph.D.</i>

## Graduate Degrees

The University of Texas at Arlington offers the following post-baccalaureate degrees through the Graduate School:

Master of Arts  
 Master of Science  
 Executive Master of Business Administration  
 Master of Architecture  
 Master of Business Administration  
 Master of City and Regional Planning  
 Master of Computer Science  
 Master of Education  
 Master of Education in Teaching  
 Master of Engineering  
 Master of Landscape Architecture  
 Master of Music  
 Master of Professional Accounting  
 Master of Public Administration  
 Master of Science in Nursing  
 Master of Science in Social Work  
 Master of Software Engineering  
 Online Master of Business Administration  
 Doctor of Philosophy

## Certificates

The University of Texas at Arlington offers the following graduate certificates through the Graduate School:

Graduate Certificate in Taxation (Accounting)  
 Executive and Professional Development Certificate Program  
 (College of Business Administration)  
 Cooperative Certificate Program for a Digital Environment  
 (College of Business Administration/College of Engineering)  
 • Electronic Commerce Certificate (Information Systems)  
 • Electronic Business Certificate (College of Business  
 Administration)  
 • Electronic Enterprise Certificate (Industrial and  
 Manufacturing Systems Engineering)  
 Superintendent Certificate (Education)  
 Certificate in Environmental Science and Engineering  
 (Environmental Science and Engineering)  
 Certificate in Hazardous Materials and Waste Management  
 (Environmental Science and Engineering)  
 Graduate Certificate in Real Estate Development (Finance and  
 Real Estate)  
 Certificate in Petroleum Geoscience (Geology)  
 GIS Certificate in Spatial Information Systems (Geology)  
 Archival Administration (History)  
 Teaching English to Speakers of Other Languages (Linguistics and  
 TESOL)  
 Certificate in Acute Care Pediatric Nurse Practitioner (Nursing)  
 Certificate in Nursing Education (Nursing)  
 Nurse Practitioner Programs (Nursing)  
 • Acute Care  
 • Adult Nursing  
 • Family Nursing  
 • Gerontological Nursing  
 • Pediatric Nursing  
 • Psychiatric-Mental Health Nursing

Post-Master's Palliative Care Certificate (Nursing)  
 Certificate in Development Review (School of Urban and Public  
 Affairs)  
 Certificate in Urban Journalism (School of Urban and Public Affairs)  
 Urban Non-profit Management Certificate (School of Urban  
 and Public Affairs)  
 Certificate Program in Geographic Information Systems (School  
 of Urban and Public Affairs)  
 Graduate Certificate in Law and Public Policy (School of Urban  
 and Public Affairs)

Requirements for each of these certificates are described under the department or program specified in parentheses after the certificate title.

## Requirements for the Master's Degree

The following minimum requirements apply to all master's degrees, including the M.A., M.S., M.Arch., M.A.T., M.B.A., M.C.R.P., M.C.S., M.Engr., M.SW.Engr., M.Ed., M.Ed.T., M.L.A., M.P.A. (Accounting), M.P.A. (Public Administration), M.S.N. and M.S.S.W., offered by The University of Texas at Arlington. Additional requirements may be imposed for specialized or professional degree programs, or by individual departments or interdepartmental or intercampus graduate studies committees. These requirements are included in descriptions of individual degree programs.

## Departmental, Program and College Program Manuals for Students

Many departments and programs issue program manuals, procedures and policy manuals, graduate student handbooks and other informational publications for students and faculty in graduate programs. These publications provide detailed and useful information; however, they are not statements of official policy of The University of Texas at Arlington nor of The University of Texas System. In all matters, the *Rules and Regulations* of the Board of Regents of The University of Texas System, the *Handbook of Operating Procedures* of The University of Texas at Arlington, and the Graduate Catalog of The University of Texas at Arlington shall supersede departmental, program or college publications.

## Graduate Program Degree Requirements and Academic Performance Standards for Master's Degrees

Degree requirements and academic performance standards given in this section are the minimum required by Graduate School and University policy. Satisfying these general requirements and standards, however, does not imply that all degree and program requirements have been met. Many programs set special course requirements and may require higher grade-point averages or other academic standards than those given in this section. Such program requirements and standards are included in individual program descriptions in this catalog and in departmental and college program manuals or policy statements. These special requirements shall not be considered in conflict with this catalog and shall have the same force as this catalog.

## Undergraduate Preparation

Minimum undergraduate preparation acceptable for graduate concentration in most areas is 12 semester hours of advanced



undergraduate work in that area; however, this requirement varies widely, and individual department and program descriptions should be consulted for specific requirements. The appropriate Committee on Graduate Studies may administer an oral, written, or both oral and written examinations to an applicant to assess undergraduate preparation for graduate work. The committee may require the student to eliminate deficiencies in undergraduate preparation before being granted unconditional acceptance into the graduate program.

### Residence

Master's degree candidates are expected to spend the equivalent of two semesters of full-time study in residence at The University of Texas at Arlington.

### Supervising Committees

The Dean of Graduate Studies will appoint for each master's student a supervising committee upon recommendation by the Graduate Advisor and the appropriate Committee on Graduate Studies. The committee will normally consist of at least three members of the graduate faculty and will be responsible for the design of the student's program. One qualified external person who is not a member of the graduate faculty may serve as a voting member of a supervising committee following a request accompanied by documentation, such as a vita, from the appropriate Committee on Graduate Studies to the Dean of Graduate Studies and approval by the Dean of Graduate Studies. Any external, non-voting members must be in addition to the three voting members and must be approved by the Dean of Graduate Studies. The supervising committee conducts the final thesis examination for thesis degree plan candidates and determines scope, content and form of the final master's comprehensive examination for thesis substitute and non-thesis degree plan candidates.

### Degree Plans and Hours Required

Three degree plans (thesis, thesis substitute and non-thesis) leading to the master's degree are available. All programs, except those in Education, and Public Administration, offer the thesis degree plan. In certain departments and programs, a student may follow a thesis substitute or non-thesis degree plan upon recommendation of the appropriate Committee on Graduate Studies and approval by the Dean of Graduate Studies. Plans available in each department or program are listed in the catalog in the section on departmental and program descriptions.

The **thesis degree plan** requires a minimum of 30 semester hours, of which at least 24 must be in coursework and six in a thesis course. The thesis must be approved by the thesis advisor and by a supervising committee of three or more members appointed by the Dean of Graduate Studies. The thesis is subject to final approval by the Dean of Graduate Studies. Students receiving advice and assistance from a faculty member in the preparation of a thesis must register for the appropriate course even if they are not on campus. Each semester, after consulting with their Graduate Advisor, students must register for the amount of thesis credit commensurate with the efforts to be expended by the student and the thesis advisor in the preparation of the thesis. Once the student is enrolled in the thesis course, continuous enrollment is required. The student must be enrolled in six hours of thesis during the semester the student finishes the thesis requirements and files for graduation. The degree candidate must defend the thesis in a final oral examination open to all members of the faculty.

The **thesis substitute degree plan** requires a minimum of 33 semester

hours, of which at least 27 must be in coursework and three in an appropriate project or research course. The thesis substitute may include: 1) internship reports in programs in which the internship has been determined by the Dean of Graduate Studies to be an essential component; 2) reports prepared in certain graduate seminar, conference or research courses; or 3) a design thesis in Architecture. The internship substitute requires a minimum of six semester hours in the internship course.

The **non-thesis degree plan** requires a minimum of 36 semester hours of coursework, of which at least 24 must be in the major area(s) of study.

### Tentative Program of Work

A Tentative Program of Work listing all transfer courses, courses in progress and courses required by the student's committee or department may be filed in the Graduate School. This is typically done before a student completes 12 hours of graduate study. If students desire approval to apply up to nine semester hours of transfer credit to their degree program, the Tentative Program of Work may be used to make the request and establish that those courses will satisfy degree requirements at The University of Texas at Arlington. In all degree plans, the entire degree program must be approved by the appropriate Committee on Graduate Studies and the Dean of Graduate Studies.

### Candidacy and Final Program of Work

Students will be admitted to candidacy for the master's degree only when the requirements listed on the Final Program of Work have been met. Students must file a Final Program of Work and Application for Candidacy with the Dean of Graduate Studies no later than 30 days after the first day of classes of the semester in which they plan to receive the degree. In addition, students must submit an Application for Graduation by the same deadline. Students planning to receive a degree at the end of the summer session must file the Final Program of Work, an Application for Candidacy and an Application for Graduation with the Dean of Graduate Studies no later than 30 days after the first class day of the 11-week summer session. These forms are available online through the Virtual Graduate School Advisor. See the Graduate School calendar, available online at [www.uta.edu/uta/acadcal](http://www.uta.edu/uta/acadcal), for specific deadline dates.

### Final Master's Examination

A final program examination is required for all master's degree candidates. The final master's examination can result in: 1) pass with a recommendation to the Dean of Graduate Studies that the candidate be certified to receive the earned degree; 2) a conditional pass with the requirement that additional conditions be met, which may include further work on the thesis or thesis substitute, additional coursework with a minimum specified grade-point average, or both (in all cases, the final master's examination must be repeated within a specified period); 3) failure, with permission to be re-examined after a specified period; or 4) failure, with recommendation to the Dean of Graduate Studies that the candidate be dismissed from the program. Most programs limit to two the number of repeats of the final master's examination. Additional repeats require specific advanced written approval by the Dean of Graduate Studies.

For **thesis degree plan** candidates, the examination will be an oral defense of the thesis. The examination will be conducted by all members of the student's supervising committee but will be open to

all members of the faculty. The thesis examining committee must have copies of the thesis at least two weeks prior to the thesis defense.

For **thesis substitute** or **non-thesis degree plan** candidates, the final examination will be a comprehensive examination that is written, oral or both. The scope, content and form of the examination(s) shall be determined and administered by all members of the student's supervising committee. Students in the College of Business Administration fulfill the comprehensive examination requirement as follows: Accounting, Professional Accounting, Master of Business Administration, Personnel and Human Resource Management, and Taxation—successful completion of BUSA 5333; Real Estate—successful completion of REAE 5319; Information Systems—successful completion of INSY 5345 or 5375; Marketing Research—successful completion of MKRS 5395 and MKRS 5398. Students in the Master of Science in Social Work fulfill the comprehensive examination requirement upon successful completion of Social Work 6305. Students in the Master of Architecture program fulfill the comprehensive examination requirement upon successful completion of six hours of advanced design studio (non-thesis) or design thesis (thesis substitute). Students in the Master of Public Administration program fulfill the comprehensive examination upon successful completion of URPA 5343.

The student's Graduate Advisor must submit a request for the thesis defense or comprehensive examination to the Graduate School no later than two weeks before the proposed examination date. The request must indicate the time, place and form (oral and/or written) of the examination and be signed by all members of the examining committee, confirming their intention to be present.

The Final Master's Examination Report must be filed in the Graduate School no later than three weeks before the date on which the candidate expects the degree to be conferred. Thesis degree plan candidates must deposit three unbound copies of the final approved thesis with the Graduate School by that date. Candidates will be billed for the required fees as explained in the Tuition and Fees section of this catalog. All these forms are available through the Virtual Graduate School Advisor.

### Master's Thesis

All master's students must be aware of requirements, components and deadlines associated with the thesis, final defense and submission of the final copies of the thesis to the Graduate School. The deadline dates for each semester are published in the Graduate School Calendar at [www.uta.edu/uta/acadcal](http://www.uta.edu/uta/acadcal).

### Enrollment Requirement

A thesis degree plan student must be enrolled in the appropriate thesis course in the semester in which the thesis is defended. Social work students will enroll in SOCW 6393 to conduct thesis research and SOCW 6398 in the semester in which the thesis is defended. Computer Science and Engineering students will enroll in Thesis I the semester before defending the thesis, and Thesis II during the semester in which they defend. All other thesis option students must be enrolled in the appropriate 6-hour thesis course in the semester in which the thesis is defended.

### Thesis Manuscript Preparation

Students pursuing a thesis option master's degree must have the format of the thesis manuscript approved by the U.T. Arlington Graduate School before the degree can be conferred. The Graduate

School specifically checks the document for conformity to U.T. Arlington formatting requirements. Details regarding U.T. Arlington's thesis formatting requirements can be found online through the Virtual Graduate School Advisor.

The Graduate School offers all master's students the opportunity to attend Thesis and Dissertation Seminars each semester. These seminars provide attendees with detailed explanations of the style guides and hands-on experience with the RAFT Template. In addition, all graduation procedures and requirements are covered in the seminars. Reservations are required and can be made online through the Virtual Graduate School Advisor.

### Preliminary Format Check

Thesis students have the option to submit a portion of the thesis to the Thesis and Dissertation Specialist in the Graduate School for a preliminary format check. The preliminary format check is not a requirement for graduation and is provided as a service for students who have questions regarding formatting. Students can generally expect feedback regarding the preliminary check within 72 hours (excluding weekends and holidays). However, students should be aware that completed theses submitted for mechanical check will be given priority over preliminary check submissions.

### Mechanical Check

In order to fulfill thesis requirements, master's thesis students must submit a copy of their thesis to the Thesis and Dissertation Specialist in the Graduate School for a complete review of the format of the entire manuscript. This review is called the mechanical check. Students may be required to resubmit the document for additional checks depending on the nature and number of formatting errors found. The final copies of the thesis may be submitted to the Graduate School only when the mechanical check conducted by the Thesis and Dissertation Specialist reveals that the thesis is formatted properly. Thus, the thesis submitted for mechanical checking should be complete and as near to being in final format as possible.

The first time a thesis is submitted for mechanical checking, it must be accompanied by the Verification of Research Compliance (VRC) form or it will be returned to the student unchecked. The VRC form can be found online through the Virtual Graduate School Advisor.

Generally, students may expect the mechanical check to be completed within 72 hours of submission (excluding weekends and holidays). However, expect the mechanical check to take longer than 72 hours during peak submission periods which occur around submission deadlines. Semester deadlines for mechanical checks can be found in the Graduate School calendar ([www.uta.edu/uta/acadcal](http://www.uta.edu/uta/acadcal)).

### Final Copies and Submission

Once the Thesis and Dissertation specialist has approved the thesis and the student has unconditionally passed the thesis defense, the student will be approved for submission of the final three copies of the thesis to the Graduate School for approval by the Dean of Graduate Studies. The three copies must be submitted in three separate, clearly labeled envelopes by the deadline for final three submission (see the online Graduate Calendar, [www.uta.edu/uta/acadcal](http://www.uta.edu/uta/acadcal)) and must be prepared according to regulations described in the current edition of *The UTA Thesis and Dissertation Guide: Requirements, Style, and RAFT Template* available online through the Virtual Graduate School Advisor and Turabian's *A Manual for Writers of Term Papers, Theses, and Dissertations* (6th ed.), available at the University Bookstore. Final

copies must be printed on 25% cotton rag, 20 lb. paper and accompanied by the Thesis Final Three Checklist, UMI microfilm agreement, Thesis and Dissertation Data Sheet, and the Intellectual Property Statement. All of the forms are available online through the Virtual Graduate School Advisor.

The final three copies of the thesis are University property and a student may make no private agreements with employers, funding sources, or others that restrict or infringe upon University rights. Thesis copyrights, where applicable, are held by the student author. Thesis fees are explained in the Tuition and Fees section of the Graduate Catalog.

### Time Limit

Programs for the master's degree must be completed within six years (time in military service excluded) from initial registration in the Graduate School.

### Foreign Language Requirement

A reading knowledge of at least one foreign language (classical or modern) is required by some departments or programs for master's degree candidates. Specific language requirements, if any, are given in the individual departmental and program degree descriptions.

## Dual Degree Programs

Students may pursue dual degree programs other than those specifically defined in the catalog with prior approval of the appropriate Committees on Graduate Studies and the Dean of Graduate Studies. Students wishing to pursue dual degree programs other than those specifically defined in the catalog should contact the Graduate School for details.

Students in any dual degree program must be admitted to each participating program. Students accepted into dual degree programs must submit separate Programs of Work for each degree, showing only courses that meet requirements for the specified degree, including those joint courses that meet requirements for both degrees. Unless otherwise stated under the dual degrees programs specified elsewhere in this catalog, the number of hours that may be used jointly will be determined by the total number of hours required by both degree programs if completed separately. For purposes of dual degree programs, the total number of semester hours required for both degrees if completed separately is defined as the number of semester hours required for a student to complete all advanced degree requirements (excluding deficiency, leveling and prerequisite courses) for both degrees.

- a. Six semester hours may be used jointly when the total number of hours required for both degrees is 60;
- b. Six to 12 semester hours may be used jointly when the total number of hours required for both degrees is between 60 and 72 hours;
- c. Six to 18 semester hours may be used jointly when the total number of hours required for both degrees exceeds 72 hours.

Admission to and enrollment in the programs for a dual degree must be concurrent. Students must be admitted to the second program before completing more than 24 semester hours in the first, exclusive of leveling, deficiency or foundation courses, and must complete the

second degree within three academic years following completion of the first.

All grades earned in dual degree status are used for purposes of determining academic good standing, academic probation and graduate requirements.

Students must be in good standing in both programs to continue in a dual degree program. Students who are dismissed from either program are no longer considered to be in a dual degree program. These students may enroll in and use courses for credit toward the degree program in which they are in good standing only. Students may not take courses in the program from which they have been dismissed and may not use such courses for dual degree credit.

Dual degree programs are available at the master's level only. Not all graduate programs participate in dual degrees.

## Requirements for the Doctor of Philosophy Degree

The Doctor of Philosophy (Ph.D.) is the highest degree offered by The University of Texas at Arlington. The degree is awarded only for academic work of distinction through which the student demonstrates superior scholarship and capacity for original work. Requirements for the doctoral degree listed below are the minimum required by the Graduate School. Meeting all of these requirements does not result automatically in the awarding of the doctoral degree. All departments and programs have additional requirements for a high level of scholarly achievement that must be met by successful doctoral candidates. In all doctoral programs, the basic requirements are that a student 1) attain mastery of a field of knowledge as determined by the appropriate Committee on Graduate Studies and demonstrated in a general examination; and 2) present evidence of a capacity to complete a significant program of original research by preparation of a dissertation.

To be admitted to a doctoral program, an applicant must have completed a master's degree or at least 30 semester credit hours of graduate coursework.

### Departmental, Program and College Program Manuals for Students

Many departments and programs issue program manuals, procedures and policy manuals, graduate student handbooks and other informational publications for students and faculty in graduate programs. These publications may provide detailed and useful information; however, they are not statements of official policy of The University of Texas at Arlington nor of The University of Texas System. In all matters the *Rules and Regulations* of the Board of Regents of The University of Texas System, the *Handbook of Operating Procedures* of The University of Texas at Arlington and the Graduate Catalog of The University of Texas at Arlington shall supersede departmental, program or college publications.

### Graduate Program Degree Requirements and Academic Performance Standards for Doctoral Degrees

Degree requirements and academic performance standards in the section entitled "Requirements for the Doctor of Philosophy Degree" are the minimum required by Graduate School and University policy.

Satisfying these general requirements does not imply that all degree and program requirements have been met. Many programs set special course requirements and may require higher grade-point averages or other academic standards than those in this section. Such program requirements and standards are included with individual program descriptions in this catalog and in departmental, program, and college program manuals or policy statements. These special course requirements published in departmental, program or college program manuals or policy statements shall not be considered in conflict with this catalog and shall have the same force as this catalog.

### Residence

Residence requirements vary widely among doctoral programs. For specific requirements, consult the Degree Requirements section under individual departments and programs offering the doctoral degree.

### Courses and Semester Hour Requirements

The doctoral degree cannot be earned solely by passing certain courses and accumulating a specified number of credit hours; however, a department or program may require a core group of courses for all of its doctoral students. Courses are generally concentrated in the student's major field, but some are normally taken in one or more complementary minor fields. In interdepartmental programs, the major work may be divided among two or more primary fields. The Graduate School imposes no specific semester-hour requirements for the doctoral degree except for residence requirements included in individual degree program descriptions.

### Foreign Language Requirement

Prior to scheduling the doctoral comprehensive examination, the Graduate School requires evidence that the student has a reading knowledge of one foreign language applicable to the student's field of study or has attained proficiency in a research-tool area such as computer sciences or experimental statistics. Other suitable foreign language substitutes may be approved by the Dean of Graduate Studies.

The Ph.D. program in English requires translation competency in two foreign languages for the Rhetoric Track and in one foreign language for the Literature Track. The Ph.D. program in History requires a reading knowledge of at least one foreign language determined by either four semesters of credit in a single foreign language (grade B average), a standardized test, or a translation exam. The Ph.D. program in Chemistry requires competency in an approved computer language, and the Ph.D. program in Psychology has established a computer knowledge requirement in lieu of the foreign language requirement. For information regarding the foreign language requirement in the Program of Linguistics, contact the Graduate Advisor. There is no foreign language requirement for the Ph.D. in the various engineering fields, but a research tool may be required as determined by the student's committee.

The foreign language requirement may be met by: 1) successfully passing an examination prepared by an appointee of the Dean of Graduate Studies; 2) making an acceptable score on the Educational Testing Service Graduate School Foreign Language Test; or 3) earning a grade of B or higher in French, German or Russian 4331 and 4332, or equivalents. The foreign language substitute requirement may be met by a method determined by the appropriate Committee on Graduate Studies and approved by the Dean of Graduate Studies.

### Diagnostic Evaluation

During the student's first year of doctoral program work, the student must demonstrate potential to successfully complete a degree program. The method of assessing the student's potential will be determined by the appropriate Committee on Graduate Studies and may be in the form of a written or oral examination, personal interviews with faculty members, successful completion of certain courses in the first semester of residence, or by any combination of these methods. Results of the diagnostic evaluation may be: 1) approval to continue in the doctoral program; 2) approval to continue with specified remedial work; 3) failure, but with permission for assessment through a second diagnostic evaluation after a specified period; or 4) failure and termination in the program.

The diagnostic evaluation report must be filed in the Graduate School by the student's Graduate Advisor during the student's first year of doctoral program work but no later than the completion of the first 18 semester hours of coursework beyond appropriate master's level coursework, or the equivalent.

### Doctoral Committees

After the student successfully completes the diagnostic evaluation, the Dean of Graduate Studies will assign an examining committee, members of which are recommended by the Graduate Advisor and appropriate Committee on Graduate Studies. The committee will consist of at least five members, four of whom must be from the student's major area, including at least one from each minor field. One qualified external person who is not a member of the graduate faculty may serve as a voting member of a committee following a request accompanied by documentation, such as a vita, from the appropriate Committee on Graduate Studies to the Dean of Graduate Studies and approval by the Dean of Graduate Studies. In interdisciplinary programs, at least two members must represent each field concerned, but in no case will the committee consist of fewer than five members. The committee is responsible for design and direction of the student's program. After the student has passed the comprehensive examination (see next paragraph), the doctoral supervising committee may be altered or expanded to accommodate the dissertation research needs of the student, but the committee must continue to include at least five voting members. Any external, non-voting members in addition to the five voting members of the committee must be approved by the Dean of Graduate Studies.

### Comprehensive Examination

Students are eligible to take the comprehensive examination after giving evidence to their doctoral committee of adequate academic achievement by having completed all or most coursework requirements. The comprehensive examination usually marks the end of formal coursework and the beginning of concentrated work on dissertation research and preparation. The student must be enrolled in the Graduate School in the semester in which he/she takes the comprehensive examination.

The comprehensive examination may be written, oral or both written and oral. Its scope, content and form shall be determined by the student's examining committee with approval of the appropriate Committee on Graduate Studies. The student's Graduate Advisor must submit a Request for the Comprehensive Examination to the Graduate School no later than two weeks before the proposed examination date.

The request must indicate the time, place and form (oral and/or written) of the examination and include signatures of all members of the examining committee.

In some departments and programs comprehensive examinations are given semiannually; in these areas students should consult the Graduate Advisor in that program for appropriate regulations and procedures.

The comprehensive examination may result in: 1) approval and recommendation to proceed to the next phase of the program; 2) approval to remain in the program but a requirement to meet certain specified additional criteria; 3) failure, but with permission to retake the examination after a period specified by the examining committee; or 4) failure with recommendation not to continue in the program.

### Admission to Candidacy

Upon passing the comprehensive examination, the student becomes eligible for admission to candidacy. The Application for Candidacy and Final Program of Work must be filed in the Graduate School and approved by the Dean of Graduate Studies at least one semester prior to awarding of the degree.

### Time Limit

All requirements for the doctoral degree must be completed within four years after the student passes the comprehensive examination.

### Doctoral Dissertation

A doctoral candidate/student must be enrolled in a nine-semester hour dissertation course (6999) in the semester in which the dissertation is defended. The dissertation represents the culmination of the student's academic efforts and so is expected to demonstrate original and independent research activity and be a significant contribution to knowledge.

Once the student is enrolled in the dissertation course, continuous enrollment is required. A student receiving advice and assistance from a faculty member in the preparation of a dissertation must register for the appropriate course even if the student is not on campus.

### Registration in Doctoral Courses

1. Registration in an individual study, research or similar course implies an expected level of effort on the part of the student that is at least equivalent to that of an organized course of the same credit value.
2. Doctoral students shall not be required to register for more than nine credit hours during any long semester or summer, except that:
  - a. Doctoral students who are enrolled in nine credit hours of organized courses and are also doing research related to their dissertation may be required to register for up to three hours of research for a total of 12 credit hours.
  - b. Doctoral students supported as a graduate research or teaching assistant may be required to register for 12 credit hours (no more than nine credit hours to be in organized courses), as determined by the students' graduate program.
3. Doctoral students who are required to register solely to satisfy a continuous enrollment requirement shall register for no more than three credit hours during each term.
4. Doctoral students may not register for more than 12 semester hours in a semester or summer session unless such registration is approved in advance by the Dean of Graduate Studies.

### Dissertation Requirements

All doctoral students must be aware of requirements and deadlines associated with the dissertation, final defense and submission of the final copies of the dissertation to the Graduate School. The deadline dates for each semester are published in the Graduate School Calendar at [www.uta.edu/uta/acadcal](http://www.uta.edu/uta/acadcal).

### Enrollment Requirement

Doctoral students must be enrolled in the appropriate 9-hour dissertation course in the semester in which the dissertation is defended.

### Dissertation Manuscript Preparation

Students pursuing a Ph.D. must have the format of the dissertation manuscript approved by the U.T. Arlington Graduate School before the degree can be conferred. The Graduate School specifically checks the document for conformity to U.T. Arlington formatting requirements. Details regarding U.T. Arlington's dissertation formatting requirements are available online through the Virtual Graduate School Advisor.

The Graduate School offers all doctoral students the opportunity to attend Thesis and Dissertation Seminars each semester. These seminars provide attendees with detailed explanations of the style guides and hands-on experience with the RAFT Template that can be used to facilitate putting a thesis or dissertation in proper format. In addition, all graduation procedures and requirements are covered in the seminars. Reservations are required and can be made online through the Virtual Graduate School Advisor.

### Dissertation Manuscript Format Review

**Preliminary Format Check:** Dissertation students have the option to submit a portion of the dissertation to the Thesis and Dissertation Specialist in the Graduate School for a preliminary format check. The preliminary check is not a requirement for graduation and is provided as a service for students who have questions regarding formatting. Students can generally expect feedback from the preliminary check within 72 hours (excluding weekends and holidays). However, students should be aware that completed theses and dissertations submitted for mechanical check will be given priority over those submitted for preliminary checks.

**Mechanical Check:** In order to fulfill dissertation requirements, doctoral students must submit a copy of the dissertation to the Thesis and Dissertation Specialist in the Graduate School for a complete review of the format of the entire manuscript. This is called the mechanical check. Students may be required to resubmit the document for additional checks depending on the nature and number of formatting errors found. The final copies of the dissertation may be submitted to the Graduate School only when the mechanical check conducted by the Thesis and Dissertation Specialist reveals that the dissertation is properly formatted. Thus, the dissertation submitted for mechanical checking should be complete and as near to being in final format as possible.

The first time a dissertation is submitted for mechanical checking, it must be accompanied by the Verification of Research Compliance (VRC) form or it will be returned to the student unchecked. The VRC form can be found online through the Virtual Graduate School Advisor.

Generally, students may expect the mechanical check to be completed within 72 hours of submission (excluding weekends and holidays). However, expect the mechanical check to take longer than 72 hours during peak submission periods which occur around submission deadlines. Semester deadlines for mechanical checks can be found in the Graduate School calendar ([www.uta.edu/uta/acadcal](http://www.uta.edu/uta/acadcal)).

### Final Copies and Submission

Once the Thesis and Dissertation specialist has approved the dissertation and the student has unconditionally passed the dissertation defense, the student will be approved to submit the final three copies of the dissertation to the Graduate School for approval by the Dean of Graduate Studies. The three copies must be submitted in three separate, clearly labeled envelopes by the deadline for final three submission (see the online Graduate Calendar, [www.uta.edu/uta/acadcal](http://www.uta.edu/uta/acadcal)) and must be prepared according to regulations described in the current edition of *The UTA Thesis and Dissertation Guide: Requirements, Style, and RAFT Template* available online through the Virtual Graduate School Advisor and Turabian's *A Manual for Writers of Term Papers, Theses, and Dissertations* (6th ed.), available at the University Bookstore. Final copies must be printed on 25% cotton rag, 20 lb. paper and accompanied by the Dissertation Final Three Checklist, UMI microfilm agreement, Thesis and Dissertation Data Sheet, the Intellectual Property Statement and a completed Survey of Earned Doctorates. All of these forms are available online through the Virtual Graduate School Advisor.

The final three copies of the dissertation are University property and a student may make no private agreements with employers, funding sources, or others that restrict or infringe upon University rights. Dissertation copyrights, where applicable, are held by the student author. Dissertation fees are explained in the Tuition and Fees section of the Graduate Catalog.

### Dissertation Defense

An application for the dissertation defense must be filed in the Graduate School by the student no later than three weeks before the final date for submission of approved dissertations and dissertation

defense reports and at least two weeks before the scheduled defense. The dissertation supervising committee must have copies of the dissertation at least two weeks prior to the dissertation defense.

The dissertation defense will be a public oral examination open to all members (faculty, students and invited guests) of the University community. Questioning of the candidate will be directed by the student's dissertation supervising committee. All members of the student's committee must be present at the defense.

Although the defense is concerned primarily with the dissertation research and its interpretation, the examining committee may explore the student's knowledge of areas relevant to the core of the dissertation problem.

The dissertation defense may result in a decision that the candidate has 1) passed unconditionally; 2) passed conditionally with remedial work specified by the committee; 3) failed, with permission to be re-examined after a specified period; or 4) failed and dismissed from the program. The dissertation must be approved unanimously by the student's dissertation supervising committee and by the Dean of Graduate Studies.

Regardless of the outcome of the defense, the dissertation defense report must be submitted to the Dean of Graduate Studies within five working days after the examination. When a scheduled defense is postponed or canceled, the Dean of Graduate Studies must receive written notice of this postponement or cancellation and a new application for the dissertation defense must be filed in the Graduate School in accordance with the Graduate School requirements specified above.

Three unbound copies of the final approved dissertation must be submitted to the Dean of Graduate Studies by the date specified in the Graduate School Calendar available at [www.uta.edu/uta/acadcal](http://www.uta.edu/uta/acadcal). When the final three copies are deposited with the Graduate School, the student will be billed for the required fees as explained in the Tuition and Fees section of this catalog.

# General Graduate School Regulations and Information

## Student Responsibility

Graduate students assume full responsibility for knowledge of all Graduate School and University rules, regulations and deadlines published in the Graduate Catalog and of all departmental and program requirements concerning their degree programs.

## Academic Dishonesty

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

In accordance with the *Rules and Regulations* of the Board of Regents of The University of Texas System (Part One, Chapter VI), institutional procedures regarding allegations of academic dishonesty are outlined in Part Two, Chapter 2, of the U.T. Arlington *Handbook of Operating Procedures*. This information may be obtained by accessing the Dean of Students' Web site at [www.uta.edu/studentaffairs/dos](http://www.uta.edu/studentaffairs/dos) or the Student Judicial Affairs' Web site at [www.uta.edu/studentaffairs/judicialaffairs](http://www.uta.edu/studentaffairs/judicialaffairs). Copies of each regulation can be obtained in the Dean of Students' Office on the lower level of the University Center.

## Student Educational Records Policy

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

Students may have official copies of their U.T. Arlington transcripts mailed to other institutions or may obtain copies for their own use. A student must sign a request form in the Registrar's Office or mail a signed, written request to release the transcript. Transcripts also may be requested through the U.T. Arlington Web page at [www.uta.edu/transcripts](http://www.uta.edu/transcripts). Requests will not be accepted by telephone or from persons other than the student without that student's written permission.

The Family Educational Rights and Privacy Act of 1974 provides that a university may release directory-type information about students. The information released may include the following items: the student's name, address, telephone number, date and place of birth, major field of study, participation in officially recognized activities and sports,

weight and height if a member of an athletic team, dates of attendance, degrees and awards received, and the last educational institution attended. Each year U.T. Arlington publishes a student directory that contains the student's name, major field of study and telephone number. The law states that a student has the right to withhold this information from the public and other students. A form requesting the withholding of this information is available in the Registrar's Office. Directory-type information also may be withheld by calling the U.T. Arlington SAM telephone system. Unless this form is completed before the Census Date of the fall semester, this data will be released as public information.

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

For admission, applicants are requested to submit their Social Security number, which serves as the basis for identification of various University records. Usage will vary according to requirements of the office in which the record is located.

A more detailed statement of the records policy is available in the Office of the Senior Vice President for Finance and Administration, Room 300, Davis Hall.

## University Authorized Absences and Observance of Religious Holy Days

The Office of the Vice President for Student Affairs provides lists of students who have absences authorized by the University (e.g., participation in athletic events or scholastic activities that are officially sponsored University functions—these are primarily activities that are funded by the University).

A student who misses an examination, work assignment or other project because of an observance of a religious holy day will be given the opportunity to complete the work missed within a reasonable time after the absence, provided the student has properly notified each instructor.

The student must contact the instructor one week in advance of the excused absence and arrange with the instructor to make up missed work or missed examinations. Instructors will provide those students an opportunity to make up the work or otherwise adjust the grading to ensure that the student is not penalized for the absence. Failure to notify the instructor or failure to comply with the arrangements to make up the work will void the excused absence.

The student may not be penalized for these excused absences, but the instructor may appropriately respond if the student fails to complete satisfactorily the missed assignment or examination within a reasonable amount of time after the excused absence.

## Administration of the Advanced Degree Programs

### Committees on Graduate Studies

Each graduate program is governed by a Committee on Graduate Studies. The committee is composed of all full members of the graduate faculty in that program. Graduate faculty from allied fields may serve on the committee, when appropriate. In an interdepartmental program, the Committee on Graduate Studies is appointed by the Dean of Graduate Studies.

### Graduate Advisors

Each graduate program has a Graduate Advisor. The Graduate Advisor represents the Dean of Graduate Studies and the Committee on Graduate Studies in matters pertaining to advising graduate students in their academic areas. The Graduate Advisor's functions include clearing of students for registration, acting upon requests for drops, adds, section changes and special examinations; keeping graduate student records; and advising graduate students about their degree plans and programs of work. The name, office location and telephone number of each Graduate Advisor is listed at the beginning of each departmental or program description in this catalog.

## Grades

Types of grades that may be assigned in courses at the University of Texas at Arlington (Valid Grades) consist of A, B, C, D, F, P, X, R, and W. The particular Valid Grades that may be assigned in a course are listed on the instructor's copy of the class roll issued at the beginning of each semester, and on the form instructors submit to report final grades at the end of the semester. Instructors may only use those Valid Grades listed on the class roll or final grade report to assign grades to students. Students uncertain about the grading policy in a course should consult their instructor at the beginning of the semester for information. Valid Grades for independent study, conference, seminar and readings courses vary widely among departments; therefore, a statement on Valid Grades and special grading policies, if any, is given at the beginning of the course descriptions for each program in this catalog.

### Grades of X, R and W

**Grade of X:** The grade of X designates the grade of incomplete. A graduate student unable to complete all assigned work in a class in the semester in which it was taken may, at the discretion of the instructor, receive an X grade. This grade is not given automatically when a student does not complete all assigned work. It is the responsibility of the student to make arrangements with the instructor to secure an X before the semester ends. The grade of X will remain as part of the student's academic record until the work is completed and a final grade awarded. To receive credit for the final grade the instructor must submit a change of grade form. A grade of X does not carry credit value. This grade is not awarded in research, internship, thesis or dissertation courses.

**Grade of R:** The grade of R designates the grade of research in progress and is given only in research, internship, thesis or dissertation courses. A graduate student unable to complete assignments in one of these courses may, at the discretion of the instructor, receive an R grade. The R grade is a permanent grade and does not carry credit

value. To receive academic credit in an R-graded course, a student must re-register for and successfully complete the course earning a valid passing grade for the course. In other words, a student may receive academic credit for passing an R-graded course only if the work is completed within a semester in which he or she is enrolled in the course. Grading policy in some courses may change during the period covered by this catalog. Grading policy for each course each semester is printed on the instructor's class roll. Students should verify grading policy with the instructor at the beginning of each semester.

**Grade of W:** A grade of W may be assigned if a student chooses to withdraw from a class after Census date, but prior to the last date to drop posted in the University's Academic Calendar. However, the grade of W is not automatically awarded. Graduate Students must consult with their Graduate Advisor before withdrawing from a class. Further, the student must secure the permission of the instructor and be passing the course (have a grade of A, B, C or P); at the time they intend to withdraw to receive a grade of W.

### N Designation

If an instructor assigns a grade that does not correspond to one of the Valid Grades for a course, the student's grade report from the Registrar will show a designation of N, meaning that no Valid Grade was received from the instructor. Because N grades are automatically converted to F at the end of the 12th week of class of the next regular semester, a student receiving an N designation on a grade report should contact the instructor immediately and request that a change from N to a Valid Grade be initiated.

### Grades awarded in research or internship courses (P, R, F or W)

Students enrolled in most research or internship courses will receive a pass (P) when the project or internship is completed, or a grade of research in progress (R), fail (F) or withdrawn (W).

### Grades awarded in three-hour thesis and three- and six-hour dissertation courses (R, F or W)

The only grades awarded in these courses are research in progress (R), fail (F) or withdrawn (W).

### Grades awarded in six-hour thesis and nine-hour dissertation courses (P, R, F or W)

The grades pass (P), research in progress (R), fail (F) and withdrawn (W) may be awarded in these courses. The grade of P can be awarded when the thesis or dissertation is defended successfully. Accordingly, a student must be enrolled in a six-hour thesis course or a nine-hour dissertation course the semester in which the thesis or dissertation is defended. Students typically enroll in these courses, defend and apply for graduation in the same semester.

## Credit Toward Degrees

Only courses completed with a grade of A, B, C, or P can satisfy graduate degree requirements. However, courses in which grades of D or F are earned will affect a student's grade-point average. A student must have a B (3.0) grade-point average in courses included in their program of work and a B (3.0) average in all work undertaken as a graduate student to have credits applied toward a graduate degree.



### Credit for Repeated Courses

A student may repeat a course only if that course is specifically designated in this catalog as one that can be repeated for credit. A student who fails to receive credit (earns a grade of D or F) may repeat the course in order to obtain credit, in which case the grades for both attempts will count in computing the student's overall grade-point average. No student will be allowed to repeat a course in order to change a passing grade of C or higher.

### Course Credit Applied to More Than One Degree

No course that has been applied to any one degree, at any graduate or undergraduate institution, may be applied to any other degree, either directly or by substitution except in approved dual degree programs. The amount of shared credit between degrees in dual degree programs is limited and varies with the total number of hours needed to complete both degrees. See Dual Degree Programs in the Advanced Degrees and Requirements section of this Catalog for details.

### Credit for Advanced Undergraduate Coursework

Up to nine hours of advanced undergraduate credit from U.T. Arlington or another institution may be applied to a master's degree program if the hours have not been used to earn a previous degree and have the approval of the appropriate Graduate Studies Committee and the Dean of Graduate Studies.

### Transfer Credit and Course Waivers

#### Transfer Credit Applied to Master's Degrees

Equivalent coursework completed at other institutions of recognized standing may be transferred to a master's degree program after evaluation and approval of the appropriate Committee on Graduate Studies and the Dean of Graduate Studies. No more than nine hours of transfer credit will be granted except in the professional master's programs that require more than 36 hours of coursework. In such programs, the number of transfer hours is limited to 25 percent of the total program hours. This rule does not invalidate written agreements between graduate programs and the Graduate School or agreements that are stated elsewhere in this catalog. Transfer credit will be accepted only for organized courses in which the student received a grade of B or higher and an official transcript showing the course(s) and grade(s) is required.

Courses from other universities taken after a student has been admitted into a master's program at U.T. Arlington must be approved in advance by the appropriate Committee on Graduate Studies and the Dean of Graduate Studies. Before enrolling in transfer courses, the graduate student must file an approved Program of Work listing the proposed transfer work or a Request to Change Program of Work if the transfer work represents an amendment to the approved Program of Work on file with the Dean of Graduate Studies. The Program of Work and Request to Change Program of Work forms are available online through the Virtual Graduate School Advisor or in the Graduate School office.

All work submitted for transfer credit must have been completed no more than five years before enrollment in a graduate program at the University of Texas at Arlington.

Transfer courses do not appear on a student's U.T. Arlington transcript and transfer course grades are not included in calculating a student's U.T. Arlington graduate grade-point average.

### Credit Toward Doctoral Degrees

Transfer work is not accepted in doctoral programs. However, formal graduate-level coursework completed in the student's major area of doctoral study at other institutions granting doctoral degrees in the student's major may serve to establish the student's competency in those subject areas and may provide a basis for waiving some U.T. Arlington course requirements. Such waivers must be shown on the Program of Work, recommended by the student's advisory committee, and approved by the Committee on Graduate Studies of the student's major and by the Dean of Graduate Studies.

### Earning Graduate Course Credit as a UTA Undergraduate Student

Courses taken in undergraduate status may not be applied directly to a doctoral program.

Some departments and colleges (i.e., the College of Business Administration) do not permit students to enroll in graduate courses unless they have been admitted to Graduate School. Others allow students enrolled as undergraduates to take a limited amount of graduate coursework under the conditions described below.

All undergraduate students should consult with the appropriate Graduate Advisor before attempting to register for graduate courses.

#### Advanced UTA Undergraduates (Current Seniors)

An undergraduate student at the University of Texas at Arlington may not use graduate courses (numbered 5000 and above) to fulfill undergraduate degree requirements. However, an undergraduate needing no more than 12 hours in one semester (six semester hours in one summer session) to complete all the requirements for a bachelor's degree may register for graduate courses and apply them toward a master's degree at U.T. Arlington under the following conditions:

1. In no case may a student previously dismissed from or denied admission to the Graduate School enroll in graduate courses or reserve courses for graduate credit.
2. All work for undergraduate credit must be completed during that semester or summer session in which the student enrolls in graduate courses.
3. Total registration for all work may not exceed 15 semester hours in a semester (or 12 semester hours in the summer sessions).
4. The student must submit to the Graduate Advisor a "Reservation of Courses for Graduate Credit by Undergraduate Students" form (available from Graduate Advisors). The reservation must be approved by the Graduate Advisor and the Dean of Graduate Studies, and the Registrar must certify that the reserved credit will not be applied to the student's undergraduate degree requirements. This form must be submitted in accordance with the deadlines printed in the Graduate School calendars in this catalog.
5. The student must have at least a 3.0 undergraduate GPA to be eligible to enroll in a graduate course and to reserve it for graduate degree credit.
6. Courses taken at U.T. Arlington and reserved for graduate credit may be applied to a master's degree program only if a grade of A, B, C, or P was earned.
7. Credit is officially accepted for application to a graduate program when a student is unconditionally admitted to the Graduate School.

8. A maximum of 12 semester hours of graduate level courses may be reserved.

### Students Holding Bachelor or Higher Degrees Enrolled as Degreed Undergraduates

Students who have completed their undergraduate studies and have been awarded their bachelor's degree may enroll as degreed undergraduates in graduate-level course work and receive graduate credit at U.T. Arlington under the following conditions:

1. Courses taken at U.T. Arlington and reserved for graduate credit may be applied to a master's degree program only if a grade of A, B, C, or P was earned.
2. No more than 12 semester hours of credit earned while a degreed undergraduate may be applied for credit toward a master's degree. These hours must be approved by the Graduate Advisor, the Committee on Graduate Studies, and the Dean of Graduate Studies. Approval is obtained by submitting a complete Tentative Program of Work or a signed and approved petition that includes the courses taken in undergraduate status and all other courses to be used for credit toward the degree. The Tentative Program of Work form is available online through the Virtual Graduate School Advisor or in the Graduate School office.
3. All courses that are applied to a master's degree must have been completed no more than five years before enrollment in a graduate program at U.T. Arlington. If the student has completed more than 12 semester hours of graduate courses in undergraduate status, only graduate courses completed within five years of enrollment in a graduate program at U.T. Arlington will become part of the graduate record and considered in computing the student's grade-point average.
4. A student may elect to apply all graduate courses completed in the last five years toward their degree or to apply none of this work. Selective application of courses is not permitted. If any courses are applied for credit toward a master's degree, all courses completed within the last five years will become part of the graduate record.

### Graduate Credit for Extension Classes

Work done in extension classes may be applied toward an advanced degree under the same conditions that apply to transfer work, except that credit for extension work is limited to six credit hours.

### Courses Not Providing Graduate Credit Personal Improvement Courses

Personal improvement individual or group music or art lessons and exercise and sports studies activities courses can not be used for the following: 1) to satisfy graduate degree requirements; 2) meet Graduate School enrollment requirements; 3) in computation of graduate grade-point averages or determination of academic probation or academic good standing in Graduate School; 4) in calculation of grade-point averages for the purpose of admission to a Graduate Program or certification for graduation from Graduate Program.

### Audited Classes

University credit is not granted for audited classes and audited classes will not satisfy enrollment requirements.

### Correspondence Courses

Correspondence courses are not accepted for graduate credit.

### Credit by Examination

Credit by examination may not be used for graduate credit and no such credit, graduate or undergraduate may appear on graduate student transcripts.

### Academic Standing Good Standing and Satisfactory Scholastic Progress

Graduate students are considered to be in good academic standing and making satisfactory progress in a degree program if they 1) meet all admission conditions within the time required 2) have a B (3.0) or better grade-point average on all coursework undertaken while in Graduate School and 3) have a B (3.0) or better grade-point average in courses needed to satisfy degree requirements by the end of the semester in which they intend to graduate. Students must be in good academic standing by the end of their final semester in order to receive an advanced degree from U.T. Arlington.

### Academic Probation

Graduate students failing to maintain an overall 3.0 grade-point average on their first six hours of coursework taken as graduate students must, during the subsequent six semester hours of coursework, raise their grade-point average to a 3.0. During the period following the first six hours of coursework in which the student failed to meet the 3.0 grade-point average, the student will be placed on academic probation. The student's record will be evaluated at the completion of each semester while on probation.

Graduate students failing to meet the 3.0 grade-point requirement after completion of the first 12 hours of coursework will be placed on academic probation and must meet the requirement by the end of the following semester of enrollment. Failure to attain a 3.0 grade-point average by the end of that semester will result in automatic dismissal from the Graduate School. Undergraduate courses or graduate courses graded P, R, X or W cannot be used to remove the condition of academic probation.

A student who has been dismissed from the Graduate School for failure to meet the 3.0 grade-point average requirement may be readmitted for further graduate study in the same or in a different program only if a Petition to the Graduate Faculty has been approved by the appropriate Committee on Graduate Studies and the Dean of Graduate Studies.

### Grievances

#### Grievances Related to Grades

It is the obligation of the student, in attempting to resolve any student grievance regarding grades, first to make a serious effort to resolve the matter with the instructor with whom the grievance originated. Individual instructors retain primary responsibility for assigning grades. The instructor's judgment is final unless compelling evidence shows discrimination, preferential treatment or procedural irregularities. If students wish to appeal, their requests must be submitted in writing on an Academic Grievance Form available in departmental or program offices to the department chair or program director. Before considering a grievance, the department chair or program director will refer the issue to a departmental or program committee of graduate faculty. If the committee cannot reach a decision acceptable to the parties involved, the department chair or program

director will issue a decision on the grievance. If students are dissatisfied with the chair or director's decision, they may appeal the case to the academic dean. If they are dissatisfied with the academic dean's decision, they may appeal it to the Dean of Graduate Studies. Students have one year from the day grades are posted to initiate a grievance concerning a grade. (For grievances other than those related to grades, see the catalog entry titled *Grievances Other Than Grades*.)

### Grievances Other Than Grades

In attempting to resolve graduate student grievances, the student must first make a serious effort to resolve the matter with the individual with whom the grievance originated. Grievances involving matters other than grades are appealed to the department chair or office director, then to the Dean of Graduate Studies (except in personnel matters, in which cases the appeal is to the Provost unless questions regarding a graduate assistant or graduate associate are involved), Vice President for Business Affairs, or Vice President for Undergraduate Academic and Student Affairs, as determined by the nature of the grievance. If the matter remains unresolved at this level, the student may appeal to the Provost. The decision of the Provost is final. (For grievances involving grades, see the catalog entry titled *Grievances Related to Grades*.)

## Registration and Enrollment Requirements

To attend The University of Texas at Arlington any given semester, a student must register and pay fees. All registration at U.T. Arlington may be done by SAM, the University's touch-tone telephone system, by calling 817-272-2726, or by Web at [www.uta.edu/registrar](http://www.uta.edu/registrar). The current semester's Schedule of Classes gives the exact dates and times for registration and should be consulted each semester, not only for registration information but advising instructions as well. The Spring Schedule of Classes is available in mid-October; the Summer/Fall Schedule of Classes is available in mid-March. All students may register by SAM or Web prior to the semester. New students, most readmitted former students and continuing students in certain majors must be advised. If advising is required, it must be done prior to registration.

### Scheduling Classes

All students must register to enroll in and attend classes. Changes to course schedules may be made by SAM or Web as well. Students who are no longer eligible for enrollment at the start of the semester will have their registration canceled and their tuition and fees refunded.

### Payment of Fees

Refer to the Tuition, Fees, and Charges section of this catalog for registration billing and payment or access [www.uta.edu/fees](http://www.uta.edu/fees).

### Late Registration

Late registration is held each semester for students who are unable to register on their regular dates. Late registration takes place by SAM or Web. Students should try to register on their earliest date since classes close during late registration and a late fee is added.

The Registration Office is located in Room B17, Davis Hall.

## Registration and Orientation Requirements for International Students

### Orientation

All new international graduate students must attend an orientation at the beginning of their initial semester at The University of Texas at Arlington. Those who do not attend the International Student Orientation before registration will not be allowed to register during the regular registration period and must attend a makeup orientation on the morning of the first class day, before registering and being assessed a late fee.

### Required Insurance

International graduate students are required to purchase The University of Texas at Arlington Student Health Insurance Plan. After the initial semester of enrollment, the insurance premium will be added automatically to the student's fees. If the student has health insurance coverage through 1) an employer of the student, spouse, or parents, or 2) U.S. or home-country government sponsorship, the student Health Insurance Plan may be waived. For outside insurance to qualify for the waiver, the coverage must include repatriation and medical evacuation benefits. If it does not cover repatriation and medical evacuation, and most U.S. policies will not, a supplemental policy must be purchased for that coverage. Students who wish to apply for the waiver must come to the International Office prior to registration to show proof of outside coverage and documentation in English describing benefits provided by the non-UTA insurance plan.

### Required Tuberculosis Screening

All new Non-U.S. Citizen/Non-Permanent Resident and Intensive English students must meet the following requirements in order to enroll in classes and remain enrolled in the University.

1. Upon arrival to the University for classes, each prospective student must have a Tuberculosis screening and/or chest x-ray in order to enroll. These may be obtained from the UTA Health Services.
2. Those tested must return to UTA Health Services to have the test read between 48 and 72 hours after administration (if not read within this time frame, the student must wait 10 days and then be re-tested). If the TB test is positive, the student must have a chest x-ray performed and the results received at UTA Health Services within a 25-class-day time limit.
3. The testing or chest x-ray must be performed even if the student was immunized with BCG (a vaccine for TB).

If the testing process and subsequent diagnostic exam are not completed and submitted to the UTA Health Services by the 25<sup>th</sup> class day, the student will be dropped from classes and barred from reinstatement.

The cost of the TB screening is approximately \$10, and if a chest x-ray is indicated, there will be an additional cost of approximately \$50. The student's insurance policy may cover the cost of the chest x-ray. For more information, please call Health Services Immunization Clinic at 817-272-2771.

## Course Load (Credit Hour) Requirements

### All International Students

International students must be enrolled for a minimum of 9 semester hours during each regular semester (Fall and Spring).

### Full-time Enrollment and Maximum Hours

Full-time students are expected to enroll in at least 9 hours in a regular semester. The minimum full-time course load during the summer sessions is 6 hours. The maximum course load for full-time graduate students is 15 semester hours in a regular semester and 12 hours in a summer session. Registration in excess of these limits will be approved by the Dean of Graduate Studies only in exceptional circumstances.

### Required Enrollment for Teaching and Research Assistants

Students receiving graduate teaching or research assistantships must meet enrollment requirements during the semester in which they are supported. Assistants must complete no more than 12 semester hours and no fewer than 9 semester hours per semester. They may register for no fewer than 6 semester hours during the summer sessions. See the section titled Graduate Assistantship/Associateship Policy for details on enrollment and other requirements that Assistants and Associates must meet.

### Required Enrollment for Students Receiving Financial Aid

To qualify for most forms of financial aid, students must enroll in and complete a certain number of credit hours each semester. Students enrolling in 9 or more credit hours at Census Date must complete at least 6 of these hours whereas students enrolling in 6-8 credits hours at Census Date must complete 3 hours to qualify for financial aid. If a student does not complete the required minimum number of hours, they will lose eligibility for aid in the next semester of enrollment. Students enrolling in fewer than 6 hours at Census do not meet the enrollment requirements for financial aid. Contact the Office of Financial Aid for additional information and guidance on enrollment and eligibility requirements.

## Adding, Dropping and Auditing Courses

### Adding and Dropping Courses

Graduate students who wish to change a schedule by either dropping or adding a course must first consult with their Graduate Advisor. Regulations pertaining to adding or dropping courses are described below. The last day to drop a course taught in regular semesters is at the end of the 12th week of class. The last day to drop a course in the other, non-traditional semesters corresponds to 75 percent of the duration of the course. The last day to drop a course is listed in the Academic Calendar available at [www.uta.edu/uta/acadcal](http://www.uta.edu/uta/acadcal).

1. A student may not add a course after the end of late registration.
2. A student dropping a graduate course after the Census Date but on or before the end of the 12th week of class may with the agreement of the instructor, receive a grade of W but only

if passing the course with a C or better average. A grade of W will not be given if the student does not have at least a C average. In such instances, the student will receive a grade of F if he or she withdraws from the class.

3. A student desiring to drop all courses in which he or she is enrolled is reminded that such action constitutes withdrawal (resignation) from the University. The student must indicate intention to withdraw and drop all courses by filing a resignation form in the Office of the Registrar or by Web at [www.uta.edu/registrar](http://www.uta.edu/registrar).
4. In most cases, a student may not drop a graduate course or withdraw (resign) from the University after the 12th week of class. Under extreme circumstances, the Dean of Graduate Studies may consider a petition to withdraw (resign) from the University after the 12th week of class, but in no case may a graduate student selectively drop a course after the 12th week and remain enrolled in any other course. Students should use the special Petition to Withdraw for this purpose. See the section titled **Withdrawal (Resignation) From the University** for additional information concerning withdrawal.

### Auditing Courses

Any person who has credit in a particular course or who has a demonstrated need for the course content may be eligible for auditing that course if space is available. An auditor has the privilege of hearing and observing only; no University credit is granted for auditing. Audit applications may be secured from the Registrar's Office. A student may audit a graduate course only with permission of the instructor and approval of the Registrar. When the form has been completed and approved, the applicant, if currently enrolled, pays \$20 per course at Bursar Services; if not enrolled, the applicant pays \$100 per course. An academic department may place restrictions on the privilege of auditing or may deny permission to audit. Audited courses will not meet Graduate School enrollment requirements.

## Withdrawal (Resignation) from the University

A student who wishes to withdraw (resign) voluntarily from the University before the 12th week of class deadline must file a resignation form in the Office of the Registrar or file online at [www.uta.edu/registrar](http://www.uta.edu/registrar). After the 12th week of class, a graduate student or undergraduate student enrolled in a graduate course is not permitted to withdraw or to selectively drop courses. In exceptional cases, however, a graduate student may request to withdraw after the 12th week of class by obtaining a Petition to Withdraw form and submitting it to the Dean of Graduate Studies. (Students should use the special Petition to Withdraw for this purpose and not the Petition form used for other types of requests.) If the petition is not approved, the student remains responsible for all coursework requirements. *Therefore, students should not discontinue class attendance or course assignments unless they have been notified in writing that the Dean of Graduate Studies has approved the petition to withdraw.* A Petition to Withdraw form is available online through the Virtual Graduate School Advisor or in the Graduate School office.

## Change of Graduate Major or Program

Students wishing to change graduate majors or programs from the one in which they are enrolled currently or in which they were enrolled during their most recent semester at U.T. Arlington must initiate the change by completing the form Request for Change of Graduate Program. Students are encouraged to consult the Graduate Advisor of the new program regarding program admission and degree requirements before requesting a program change. A Request for Change of Graduate Program form is available online through the Virtual Graduate School Advisor or in the Graduate School office.

## Graduation Requirements and Procedures

### Degree Conferral

Degrees are awarded at the end of the fall semester (December), spring semester (May) and summer session (August). Formal commencement ceremonies are held within the college or school in which the degree is earned. Candidates should contact the office of the dean of the appropriate unit for instructions concerning participation in the commencement ceremonies.

U.T. Arlington will confer no honorary degree.

### Degree Requirements

Each graduate student must complete degree requirements in accordance with the Graduate Catalog in force at the time the student entered the graduate program in which the degree will be awarded or, at the student's option, the catalog of any subsequent year in which the student was in residence. If a student chooses to complete degree requirements in accordance with the catalog of a year subsequent to that in which he/she entered the graduate program, the student must indicate that intention by filing a petition with the Dean of Graduate Studies before the beginning of registration for the semester in which the student expects to receive the degree. A petition form is available in the Graduate School Office or online through the Virtual Graduate School Advisor.

Changes in Graduate School regulations and policies become effective for all enrolled students in the year for which the catalog is in force, regardless of the year of initial enrollment. Therefore, each candidate for graduation must observe Graduate School regulations and follow graduation procedures prescribed in the Graduate Catalog in force in the intended semester of graduation.

### Continuous Enrollment

After initial enrollment in the thesis or dissertation course, a student must maintain continuous enrollment in thesis or dissertation courses (summers excluded unless summer enrollment in thesis/dissertation is required by student's program) until the thesis or dissertation has been accepted by the Dean of Graduate Studies. This requirement applies even when a student is working on their thesis or dissertation at an off-campus location. Failure to maintain continuous enrollment may invalidate previous thesis or dissertation work.

## Enrollment Requirements for Thesis and Dissertation Courses

### Academic Standing

Students may not register for dissertation or thesis courses if they are not in good standing academically.

### Credit Hours

A student receiving advice and assistance from a faculty member in preparation of a thesis or dissertation must register for the appropriate course even if the student is not on campus. Variable credit is available for thesis and dissertation courses. Each semester after consulting with their Graduate Advisor, students must register for the amount of thesis or dissertation credit commensurate with the effort to be expended by the student and the thesis or dissertation advisor in preparation of the thesis or dissertation. However, most Master's students must enroll in a six-hour thesis course and all doctoral students must enroll in a nine-hour dissertation course in the semester in which they intend to defend their thesis or dissertation. The six-hour thesis and the nine-hour dissertation courses are graded on a pass/fail basis. A grade of R (research in progress) may be given for thesis or dissertation courses prior to the semester in which the thesis or dissertation is successfully defended and a grade of P awarded. The grade of R is a permanent grade that does not carry any credit value. Therefore, to receive credit students must re-enroll in the six-hour thesis or nine-hour dissertation course until the thesis or dissertation is completed and a grade of P is earned.

## Final Semester Requirements

### Enrollment Requirements

All students must be enrolled in the Graduate School for the semester in which they complete all graduate degree requirements and apply for graduation. Students defending or completing required changes in their thesis or dissertation in their final semester must be enrolled in the proper six-hour thesis or nine-hour dissertation course to receive a passing grade. Students may not petition for a reduction in this requirement. Enrollment in courses outside the major and minor fields will not satisfy final semester enrollment requirements. Students may request to graduate *in absentia* if they have completed all degree requirements and must register simply to have their degrees awarded.

### Funded Students Enrollment Requirement

Funded students are normally expected to be enrolled as full time students while holding an assistantship or associateship. Students who must enroll in a six-hour thesis or nine-hour dissertation course because they have not yet received a passing grade in these courses must enroll in them in their final semester. However, master's students who need fewer hours to complete their degrees may petition for a waiver of full time enrollment as described in the Assistantship/Associateship Policy section of this catalog.

### *In Absentia* Registration

*In absentia* registration will be allowed when degree candidates have completed all requirements for graduation by the last date to qualify

for *in absentia* registration (see the Graduate School calendar in this catalog) and who would otherwise need to register in the following semester for the sole purpose of having a degree conferred. A student may only request *in absentia* registration in the regular or summer semester immediately following the semester in which he or she was enrolled and completed all graduation and degree requirements. Students registered *in absentia* may not enroll for courses. No refund is made for cancellation of *in absentia* registration. *In absentia* registration requires permission of the Graduate Advisor and the Dean of Graduate Studies. Students may obtain the Request to Register *in Absentia* Form from the Graduate School or online through the Virtual Graduate School Advisor. In addition to paying the cost of *in absentia* registration, candidates must file an application for graduation and pay the diploma fee for the semester of graduation.

### Application for Graduation

All graduating students must file an Application for Graduation with the Graduate School by the deadline specified in the Graduate School calendar for the semester of graduation. The application is not transferable to a subsequent semester; therefore, if a student does not graduate in the semester indicated in the initial application, that application will be canceled and a new one must be filed for the semester of graduation. The Graduate School calendar is available at [www.uta.edu/uta/acadcal](http://www.uta.edu/uta/acadcal).

Students who fail to apply for graduation by the deadline specified in the Graduate School calendar may apply late by completing the Application for Graduation and paying both the diploma fee and the late fee. Applications for graduation will be accepted with a late fee for 30 calendar days after the deadline for applying for graduation. (If this date falls on a weekend, the deadline for applying late will be the Friday before the date.) After that date, no applications will be accepted and students must apply for graduation for a subsequent semester.

Applicants for graduation will be billed for the diploma fee and, as appropriate, for thesis and dissertation fees and the late fee. The diploma fee and the late fee are non-transferable and non-refundable. See the section titled Tuition, Fees, and Charges in this catalog for information on specific fees.

### Summary of Final Semester Requirements for Master Degree Candidates

Each master's program student must:

#### *Enroll in*

- a. the six-hour thesis course if a thesis plan student
- b. the master's comprehensive course or equivalent if required by the student's program
- c. at least one graduate course in the student's program if not enrolled in a or b above

*File* (forms are available online through the Virtual Graduate School Advisor)

- d. the Application for Graduation
- e. the Application for Candidacy and Final Program of Work
- f. verification of Research Compliance (thesis students only—this document must be submitted before thesis will be checked by the Graduate School)
- g. three unbound copies of the final approved thesis with completed signature pages, extra title and abstract page in copy #1 and a completed Thesis and Dissertation Data Sheet (thesis students only)
- h. a request for the final master's examination

- i. the Final Master's Examination Report
- j. the University microfilm agreement (thesis students only)
- k. the copyright authorization (thesis students only, but optional)
- l. Intellectual Property Statement

#### *Pay*

- m. the thesis binding, microfilming and (optional) copyright fees (thesis only)
- n. the diploma fee
- o. the mailing fee (if required)

### Summary of Final Semester Requirements for Doctoral Candidates

Each doctoral candidate must:

#### *Enroll in*

- a. the nine-hour dissertation course

*File* (forms are available online through the Virtual Graduate School Advisor)

- b. the Application for Graduation
- c. the Application for Candidacy and Final Program of Work
- d. Verification of Research Compliance (must be submitted before the dissertation will be checked by the Graduate School and approved for final copies)
- e. three unbound copies of the final approved dissertation with completed signature pages, extra title and abstract page in copy #1 and a completed Thesis and Dissertation Data Sheet
- f. a request for the dissertation defense
- g. the Dissertation Defense Report
- h. the University microfilm agreement
- i. the copyright authorization (optional)
- j. the National Research Council Survey of Earned Doctorates form
- k. Intellectual Property Statement

#### *Pay*

- l. the dissertation binding, microfilming and (optional) copyright fees
- m. the diploma fee
- n. the mailing fee (if required)

## Graduate School Deadlines

All Graduate School deadlines, as indicated on the calendar or in the explanation of policies and procedures, unless otherwise stated, are final at 5 p.m. of the date specified. By this time all transactions must be completed and documents received in the Office of the Dean of Graduate Studies. Transactions and documents requiring action or approval of Graduate Advisors, committees, instructors, department chairmen, academic deans or others prior to receipt by the Graduate School should be initiated by the appropriate person (student, instructor, Graduate Advisor or other) sufficiently in advance of the Graduate School deadline for the required actions to be taken and approvals received. The Graduate School calendar is available at [www.uta.edu/uta/acadcal](http://www.uta.edu/uta/acadcal).

## Graduate Assistantship/Associateship Policy

Graduate teaching and research assistantships and associateships are funded through state appropriations and federal, state, local and

private grants for at least three principal reasons. First, employment of graduate students in teaching and in research positions during their graduate education encourages and supports their participation in these two major functions of a university and thereby strengthens the quality of the students' educational experience. Second, assistantships and associateships provide direct financial support to outstanding students who are essential to the development of quality graduate programs. Third, graduate students provide valuable and necessary services to the University in their roles as teaching and research assistants and associates. It must be kept in mind, however, that graduate assistants and associates are first and foremost students. As such, their most important task is to complete their degree requirements in a timely fashion; this is the primary expectation of the University as well.

The University of Texas at Arlington supports the "Resolution Regarding Graduate Scholars, Fellows, Trainees, and Assistants" of The Council of Graduate Schools in the United States. A copy of the resolution and list of signatory institutions is available in the Graduate School and can be viewed at [www.cgsnet.org/publicationsPolicyRes/resolutions.htm](http://www.cgsnet.org/publicationsPolicyRes/resolutions.htm).

To assure the appointment of the most highly qualified students available and to best realize the principal objectives for which graduate assistants are employed, The University of Texas at Arlington has adopted the following policies and regulations, all provisions of which apply to both graduate assistantships and graduate associateships.

### Admission Status

A student must be admitted to a degree program to be eligible to hold a graduate assistantship. Students admitted as Provisional students may not be considered for an assistantship until all provisional requirements have been resolved.

### English Proficiency

Before being appointed to an assistantship at U.T. Arlington, a student whose native language is not English must demonstrate English proficiency. The preferred method to demonstrate is by submitting an acceptable score of 45 or higher on the Test of Spoken English (TSE) before arriving in the United States. The TSE score should be sent directly to U.T. Arlington. Score reports submitted directly by the student or those marked "Student Copy" or "Applicant's Copy" are not considered official and will not be accepted by the University. Holding a degree(s) from a U.S. college or university does not exempt from this requirement assistantship applicants who are non-native speakers of English. The TSE is administered at TOEFL test centers around the world. See the catalog entry titled Application Documentation Requirements in the Admission Requirements and Procedures section for further information.

A student may also demonstrate English proficiency by submitting an acceptable score of 45 or higher on the U.T. Arlington Spoken English Assessment (SEA) test. Contact the U.T. Arlington Assessment Services Office for SEA information.

### Developmental English Program

Students who do not achieve scores on the TSE or SEA high enough to satisfy the English proficiency requirements for graduate teaching assistants must enroll in the Developmental English Program and be certified for English proficiency before becoming eligible to hold a teaching assistantship. This 10-week program, offered by the U.T. Arlington English Language Institute, emphasizes oral presentation

skills and accent reduction. Registration is in 402 Hammond Hall, and the charge is \$460, payable at the time of registration. Contact the English Language Institute at 817-272-2730 for details, including the current class schedule and charges.

### Continuation or Renewal of Appointment

Although a student may be appointed initially to a graduate assistantship for a full academic year, continuation of the appointment beyond the first semester is subject to the following conditions:

1. The student must be in good standing in the University. A student who is placed on academic probation for failure to maintain a 3.0 grade-point average is not in good standing and, therefore, is not eligible to hold an assistantship. However, new students, admitted with probationary conditions, may be considered for an assistantship, subject to the requirement that they earn and maintain a 3.0 grade-point average while enrolled as a graduate student, conform to admission conditions specified by the admitting department or the Graduate School, and meet assistantship enrollment requirements.
2. The student must be making satisfactory progress toward an advanced degree.
3. The student must have performed assigned assistantship duties satisfactorily in the preceding semester(s) as determined by the department in which the assistantship is held.

A department may limit the number of semesters during which a graduate student may hold an assistantship.

### Resident Tuition Rates

Graduate teaching and research assistants employed at least 20 hours per week in positions related to their degree programs are entitled to Texas resident tuition rates. Eligibility for the resident rate must be certified prior to registration by the dean of the college in which the assistantship is held; otherwise, full tuition will be assessed.

Non-resident or international students holding less than full assistantships (full meaning 20 hours employment per week) are not eligible for Texas resident rates.

### Course Load

Graduate assistants may register for and must complete no more than 12 semester hours and no fewer than nine semester hours per semester. They may register for no more than 12 semester hours and no fewer than six semester hours for the three summer sessions.

Funded students in their final semester who are not required to be enrolled in either a six-hour thesis or nine-hour dissertation may petition to have their course load reduced as described in Final Semester Enrollment regulations.

Upon approval of the Dean of Graduate Studies, the minimum registration limit may be reduced to six semester hours for students who have 1) completed all coursework, 2) are registered for thesis or dissertation only, and 3) have submitted an approved final program of work. Students defending their thesis or dissertation must enroll in either a six-hour thesis course or a nine-hour dissertation course in the semester in which they defend and may not petition for a course load reduction below that required by these courses.

Non-thesis master's students holding an assistantship with only three or hours of organized coursework left to complete a program in his or her final semester and who have submitted an approved final program of work may also apply for a waiver of the full time enrollment policy.

Students meeting the requirements for a reduced course load must request a waiver of the enrollment requirement by submitting a Request for Waiver of Full Time Enrollment form to the Dean of Graduate Studies. This form is available online through the Virtual Graduate School Advisor or from the Graduate School office.

A course load of more than 12 semester hours must be approved in advance by the Dean of Graduate Studies.

### Assignment of Duties

Graduate assistants are under the direction of the department chair with regard to assistantship responsibilities and assignments.

### Additional Employment While an Assistant or Associate

#### All Students

In accepting a graduate assistantship/associateship, students agree to devote their efforts to graduate studies and assistantship/associateship responsibilities and, therefore, agree to hold no employment above and beyond the assistantship/associateship.

In some circumstances, however, additional employment may be justified. Graduate assistants wishing to hold additional assistantships/associateships or accept additional on or off-campus positions must obtain the approval of the Dean of Graduate Studies if the total time invested in the combination of all paid activities exceeds half-time (20 hours per week). Such requests are made by filing a U.S. or International Graduate Assistant Request for Approval of Additional Employment form that may be obtained in the Graduate School office or downloaded from the Web using the Virtual Graduate School Advisor link.

#### International Students

During the fall and spring semesters, international students may work on campus only 20 hours per week unless authorized for additional employment through Curricular Practical Training (CPT). During vacation and the summer, international students may work more than 20 hours per week on-campus without additional authorization. At anytime during the year, employment with an off-campus employer must be authorized by either BCIS or by the International Office in the case of CPT. If the intended additional employment is to be authorized by CPT, both the Graduate School and the International Office must approve. The form Request for Approval of Additional Employment is available online through the Virtual Graduate School Advisor or in the Graduate School office. Students holding a UTA assistantship wishing to work off-campus in addition to the assistantship, must 1) meet and maintain the enrollment

requirements for holding an assistantship 2) meet the immigration requirements for CPT 3) work only part-time (20 hours or less) off-campus 4) be employed in off-campus work that is clearly connected to his or her assistantship. If these requirements are not met, a student will be obliged to give up either the assistantship or the off-campus employment.

## Seeking Exceptions to Policies of the Graduate School

A student may petition for exceptions to published rules of the Graduate School by submitting a petition form to his or her Graduate Advisor. The Graduate Advisor and the departmental Committee on Graduate Studies evaluate the petition and send it to the Dean of Graduate Studies for his final judgment. Limited exceptions to some rules may be approved if the facts presented by the petitioner are in the views of the Advisor, Committee on Graduate Studies and Graduate Dean are fully justified. All petitions must be submitted on petition forms available in the Graduate School office and online through the Virtual Graduate School Advisor.

## Course Designation System

The following example provides an explanation of the designation system of graduate courses at The University of Texas at Arlington.

### 5313 CARBONATE PETROLOGY (2-3)

1. The four-digit number (5313) is the departmental unique numerical designation for the specific course listed.
  - a. The first digit (5) in the above example denotes the level of the course. Graduate courses are designated 5 or 6.
  - b. The second digit (3) denotes the semester hour credit of the course.
  - c. The third and fourth digits (1 and 3) are departmental designations and may or may not have sequential significance.
2. The first number in parentheses following the course title indicates the class hours per week devoted to lecture. The second number indicates the class hours per week devoted to laboratory, practice or fieldwork for the fall or spring semester.

Each department or program has been assigned a unique two-, three- or four-character prefix for use in course designations on registration documents, transcripts and other University records. For example, the Carbonate Petrology 5313 course described above is taught in the Department of Geology and appears on student records as GEOL 5313. The two-, three- or four-character prefix is given in parentheses after the department or program name in the catalog section describing academic departments and programs.



# Admission Requirements and Procedures

This catalog is a general information publication only. It is not intended to nor does it contain all regulations that relate to students. The provisions of this catalog do not constitute a contract, express or implied, between any applicant, student or faculty member and The University of Texas at Arlington Graduate School or The University of Texas System. The University reserves the right to withdraw courses at any time, change fees, rules, calendar, curriculum, degree programs, degree requirements, graduation procedures and any other requirements affecting students. Changes will become effective whenever the proper authorities so determine and will apply to both prospective students and those already enrolled. Students are held individually responsible for complying with all requirements of the rules and regulations of the University and the Board of Regents of The University of Texas System. Failure to read and comply with policies, regulations and procedures will not exempt a student from whatever penalties the student may incur.

## Admission

The admission requirements set forth in the following pages are the minimum standards required for admission to the Graduate School. Meeting them does not guarantee acceptance into a departmental degree program because most departments have more stringent admission standards.

The admission policies of the Graduate School and the academic departments of The University of Texas at Arlington comply with standards established by Texas law in HB 1641. Specifically, performance on a standardized test is not the sole criterion for consideration of an applicant for admission or competitive scholarships or as the primary criterion to end consideration of an applicant. Other factors, including the quality of an applicant's academic preparation, relevant experience, commitment to the field of planned study, multilingual proficiency, and socioeconomic background (to the extent that it can be identified) may also enter into these decisions. This law does not apply to standardized tests used to measure the English language proficiency of non-native English speakers without a bachelor's or master's degree from an accredited U.S. institution.

## Basic Admission Requirements

The Graduate School requires that basic admission requirements be met before a student can be accepted. In meeting these requirements, an applicant 1) must have a bachelor's degree from an accredited U.S. college or university or its foreign equivalent, with a satisfactory grade-point average 2) must have an acceptable and current score on the aptitude tests of the Graduate Record Examination or the Graduate Management Admission Test, as specified by the department or program to which application is being made; 3) demonstrate potential for graduate work in the chosen field through previous academic performance; and 4) be approved for admission by the department(s) in which a degree is sought. Many departments have additional requirements, and all departments have specific expectations concerning acceptable qualifications, so applicants should examine departmental requirements with care.

## Application

Application for admission must be made on official application forms. Students may complete our application online, download an application package and apply by submitting a paper application, or obtain an application package by contacting the Graduate School office, Room 333, Davis Hall. Online access to application materials, and other helpful information for applicants can be found at our Web site <http://grad.uta.edu> by selecting the Virtual Graduate Admissions Counselor link.

## Application Evaluation Charges

A non-refundable application evaluation charge is required of all applicants. Payment must be received before processing can begin. There are no exceptions to this policy.

A non-refundable evaluation charge of \$30 is required of all U.S. citizens and U.S. Resident Alien applicants who have completed all of their college or university work at institutions located in the United States. A \$60 evaluation charge is required of all U.S. citizens and U.S. Resident Alien applicants who have completed undergraduate or graduate coursework at an institution located outside of the United States.

All international students are required to pay a non-refundable \$60 application evaluation charge.

## Application Documentation Requirements: Required Official Transcripts, Marksheets, Diplomas and Standardized Tests

Graduate School application processing requires receipt of official U.S. transcripts or foreign country transcripts or marksheets and diplomas. Unattested, notarized or fax copies of U.S. transcripts, foreign country transcripts, marksheets, diplomas, test scores and other academic records are not acceptable for processing purposes. Acceptable transcripts, marksheets and diplomas from U.S. and international institutions are described below. Documents meeting the indicated criteria will be accepted by the Graduate School for admission purposes. Unacceptable documents will prevent or cause delays in admission processing.

### U.S. Transcript Criteria

Official transcripts from U.S. institutions are those mailed directly to the Graduate School by the Registrar or responsible head of the institution at which the work was attempted or completed or upon Graduate School review an official original "issued to student" transcript on safety paper with the official university seal and signature of the Registrar of the institution at which the work was attempted or completed. One, but preferably two, transcripts are requested.

## Foreign Country Transcripts or Marksheets and Diplomas Criteria

Official foreign country transcripts or marksheets and diplomas are those bearing the original seal of the institution and the original signature of the Registrar or responsible head of the institution. Those not issued in English must be accompanied by an exact word for word original English translation bearing the original university or translation agency attestation. One, but preferably two, transcripts or marksheets and diplomas are requested. They may be sent directly to the Graduate School by the institution or by the applicant.

## Standardized Test Score Reports

Official test score reports for the Graduate Record Exam (GRE), Graduate Management Admission Test (GMAT), Test of English as a Foreign Language (TOEFL), and Test of Spoken English (TSE) are issued by the Educational Testing Service (ETS) and sent by ETS directly to the Graduate School. These tests may be taken by appointment at computer-based testing centers throughout North America and at selected international sites. A paper-based version of each test is also offered. Current information about GRE, GMAT, TOEFL and TSE test dates, locations and registration procedures is published by ETS at [www.ets.org](http://www.ets.org).

Applicants should refer to individual departmental or program section for test score requirements.

## Test of English as a Foreign Language (TOEFL) and Test of Spoken English (TSE)

An applicant whose native language is not English must submit a score of at least 550 on the Test of English as a Foreign Language (TOEFL) or a score of at least 213 on the computer-based test, or a minimum score of 40 on the Test of Spoken English (TSE). Official TOEFL scores more than two years old are not released by the Educational Testing Service; therefore, an applicant who has taken the TOEFL more than two years before the semester for which the applicant is applying must retake it. TOEFL score reports bearing the designation "Applicant's Copy" are not considered official scores for admission purposes. An applicant holding either a bachelor's or a master's degree from an accredited U.S. college or university is not required to submit a TOEFL score. Any other waivers of the TOEFL score requirement must be recommended by the applicant's Graduate Advisor and approved by the Dean of Graduate Studies. The TSE can be substituted for the TOEFL. The TOEFL and the TSE are administered at various centers in the United States and abroad several times each year.

Before being appointed to an assistantship at U.T. Arlington, a student whose native language is not English must submit an acceptable score (45 or higher) on the TSE. An applicant who is a non-native speaker of English and who may wish to be considered for an assistantship should take the TSE before arriving in the United States and have the score sent to U.T. Arlington. Score reports submitted directly by the student or those marked "Student Copy" or "Applicant's Copy" are not considered official and will not be accepted by the University. The holding of a degree(s) from a U.S. college or university does NOT exempt from this requirement assistantship applicants who are non-native speakers of English. The TSE is administered at TOEFL test centers around the world. Applicants should register for TSE (for teaching and research assistant applicants). *Note:* If the TSE is taken and an acceptable score is achieved, the TOEFL is not required.

The Spoken English Assessment (SEA) examination is administered through the Assessment Services Office on the U.T. Arlington campus at various times during the year. A satisfactory score on this examination may be used for the TSE requirement for assistantships. This examination may be taken in cases in which the student has come to U.T. Arlington without having taken the TSE and wishes to be considered for a graduate assistantship. Cost and time necessary for scoring the SEA examination are comparable to those for the TSE. Contact the Assessment Services Office for administration dates and other details, [www.uta.edu/assessment](http://www.uta.edu/assessment).

Current information about the TOEFL and the TSE test dates, locations and registration procedures is published by ETS at [www.ets.org](http://www.ets.org).

## Developmental English Program

Students who do not achieve scores on the TSE or SEA high enough to satisfy the English proficiency requirements for graduate teaching assistants must enroll in the Developmental English Program and be certified for English proficiency. This 10-week program offered by the U.T. Arlington English Language Institute emphasizes accent reduction and oral presentation skills needed by teaching assistants. Contact the English Language Institute at 817-272-2730 for details, including current class schedule and charges.

## Retention of Application Materials

Application materials become property of The University of Texas at Arlington and cannot be returned. Completed applications, transcripts, marksheets and diplomas, test scores and all application records for students who do not register in the semester for which they applied are retained by the Graduate School for one year.

## Notification of Applicants Regarding Admission Decisions

While admission-related information received from the graduate program to which an individual has applied may be important and useful, such information does not constitute official notice of admission into Graduate School or into a graduate program at The University of Texas at Arlington.

Official notification of the admission decision is issued by the Office of the Dean of Graduate Studies and is sent by the Graduate School directly to the applicant. It is very important that applicants read this notice carefully because it describes any conditions or restrictions placed on admission that must be addressed. Many of these conditions must be satisfied before the end of the first semester of enrollment. If they are not, a student may be barred from enrolling in subsequent semesters. Thus applicants should read the notice and keep it for future reference. Admission conditions described in official notification letters are described in the following section.

## Types of Admission Decisions

After an applicant's credentials have been evaluated by the Graduate Advisor in the applicant's major area and by the Dean of Graduate Studies, the applicant will be notified by letter from the Dean of Graduate Studies of: 1) acceptance and admission under one of the categories of admission listed below; 2) denial of application; or 3) deferral for reasons listed in the notice. If accepted, an acceptance

letter will be issued by the Dean of Graduate Studies stating conditions for admission and period of validity of the acceptance. Applicants who have not received an admission notification one week prior to the beginning of classes for the semester for which admission is sought should contact the Graduate School for information concerning the status of their application.

### Unconditional Admission

An applicant who meets all requirements is normally granted unconditional admission.

### Probationary Admission

An applicant who does not meet all requirements for unconditional admission nevertheless may show promise for successful graduate study and, upon recommendation of the appropriate Committee on Graduate Studies and approval of the Dean of Graduate Studies, may be granted probationary admission. Special course requirements or other conditions may be imposed by the Committee on Graduate Studies in the student's major area and/or by the Dean of Graduate Studies.

### Provisional Admission

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements, upon recommendation of the appropriate Committee on Graduate Studies and approval of the Dean of Graduate Studies, may be granted provisional admission. Complete and satisfactory credentials must be received by the Graduate School before the end of the semester in which the student has registered in a provisional status. A student will not be permitted to enroll in the Graduate School with a provisional status for more than one semester. Provisional admission does not guarantee subsequent admission on an unconditional basis. International applicants residing outside of the United States at the time of application may not be admitted on a provisional basis. A student may not hold an assistantship while in provisional status.

### Deferred Admission

If an applicant does not present adequate evidence of meeting admission requirements, the admission decision may be deferred until records are complete. The applicant will be sent an Admission Deferral Notice specifying the data that must be provided or the work that must be completed before the application will be reconsidered. The application may be reactivated for reprocessing by returning the "Request to Reactivate Application" that accompanied the Admission Deferral Notice. An application evaluation fee will be required for each reprocessing request.

If more than a year has passed since initial admission or last update, a person must reapply (complete a new application, submit new copies of transcripts, marksheets, diplomas, test scores, letters of reference, and all other required materials) to the Graduate School and pay the appropriate evaluation charge.

### Denied Admission

Admission is typically denied if an individual fails to meet more than one of the admission standards of the department to which he or she applied and the admission committee feels that there is insufficient basis to justify a probationary, provisional or deferred admission recommendation. As the admission process is competitive, students

meeting basic admission requirements who are less than well qualified than other applicants may also be denied admission.

Applicants denied admission to Graduate School may not take or reserve graduate courses for graduate credit. Applicants may reapply for admission if the deficiencies in credentials that led to denial are remedied. An application evaluation fee will be required for each reprocessing request. Applicants denied admission may ask the Graduate Advisor in the program to which they applied or ask the Graduate School about the deficiencies that led to the denial.

## Graduate English Skills Program

The Graduate English Skills Program (GESP) comprises an intensive English course designed for international students who have been accepted to the U.T. Arlington Graduate School provisionally because of low verbal admission scores.

The program focuses on improving English language skills in the areas of academic writing, reading/research skills, note taking from academic lectures, accent reduction and oral presentations. Instruction includes technological support materials.

International students must receive a provisional admission from the Graduate School at U.T. Arlington and permission from their graduate departments to enroll in GESP to remove their English deficiencies.

Students who receive permission to enroll GESP are tested in writing, reading, speaking and listening. Based on the outcome of placement tests, the English Language Institute (ELI) will recommend to the graduate departments the areas where each student needs improvement. A student may be required to take no further English or as little as one skill area up to a maximum of three skill areas (five hours) per day. Students studying less than five hours of English per day may be allowed by their department to enroll in some graduate courses as well.

At the end of a semester, if the student has attained a minimum average of 85% during the semester, the GESP Coordinator will recommend to the graduate department that the student enroll for all graduate courses or continue studying English. Most students complete their English requirements in a semester. Full tuition for the Graduate English Skills Program is \$2,895 per semester (\$1,895 in summer). Tuition also may be scaled to two-thirds or one-third if less than a full program is taken.

For more information, contact the GESP Coordinator at the English Language Institute, Box 19560, Arlington, Texas 76019. Phone: 817-272-7576. Fax: 817-272-2731.

## Application Deadline and Admission Requirements for United States Citizen Applicants

A U.S. citizen applicant should file an official U.S. Citizen Application form available online through the Virtual Graduate Admissions Counselor link or by a request made to the Graduate School office. The application and following required credentials should be submitted preferably 90 days prior to the date of expected enrollment: 1) one, but preferably two, official transcripts (as defined in the section titled "Application Documentation Requirements: Required Official

Transcripts, Marksheets, Diplomas and Standardized Tests”) of all undergraduate and graduate college work previously taken (an applicant who has attended U.T. Arlington previously within five years as an undergraduate or special student must submit in person or by mail a request to the U.T. Arlington Registrar to forward to the Graduate School copies of all previous college transcripts on file in the Registrar’s Office); 2) scores on the aptitude tests of the Graduate Record Examination, or Graduate Management Admission Test if required in place of the GRE; 3) three letters of recommendation completed according to the instructions accompanying the official application form; 4) a nonrefundable application evaluation charge of \$30, if no foreign college or university work or \$60 if foreign college or university work; and 5) a completed U.S. Citizen application form.

Some graduate programs may set deadlines for admission or consideration of applicants for graduate assistantships that are earlier than general deadlines established by the Graduate School. Such deadlines will be included in descriptions of admission requirements provided by each department. Applicants should read those materials carefully and submit their application materials before a departmental deadline passes. If the department does not specify a deadline, applicants should meet Graduate School deadlines described above.

### Calculation of the Grade-Point Average for Admission Purposes (U.S. Colleges and Universities)

The grade-point average for admission to the Graduate School at The University of Texas at Arlington is calculated according to Texas law and the policies and procedures of the Graduate School. For applicants completing work in U.S. institutions of higher learning, calculation of the grade-point average for admission purposes is based on the last two years of courses from the bachelor’s degree transcript, on a 4.0 scale. In practice, this grade-point average is based on approximately the last 60 semester hours or the equivalent in quarter hours (90 quarter hours) shown on an applicant’s the bachelor’s degree transcript.

In cases in which an applicant’s transcript shows repeated courses, the grade-point calculation includes all grades earned in those courses.

For an applicant who applies before official receipt of the bachelor’s degree, the grade-point calculation will include all senior college and university work completed to date. The grade-point average will not be automatically recalculated upon receipt of the degree.

An applicant wishing to have undergraduate courses completed after they earned their bachelor’s degree considered in the grade-point calculation may submit a written request to the Graduate School at the time the application for admission is submitted.

International applicants and others with degrees earned outside the United States should see the grade-point calculation information under Admission of International Students and Resident Aliens.

The following are **not** included in grade-point calculation for admission purposes:

1. courses completed at junior or community colleges
2. courses completed by examination or correspondence
3. incomplete grades or withdrawals
4. pluses and minuses
5. personal improvement courses such as private music lessons or activity courses in physical education

6. graduate courses or any courses completed in graduate student status (a graduate grade-point average will be calculated and reported separately)
7. courses in which the grade is a P, pass, credit, satisfactory or other such designation

## Academic Fresh Start Undergraduate Programs

Texas residents may seek to enter undergraduate programs at U.T. Arlington under provisions of the “academic fresh start” statute, Section 51.931 of the Texas Education Code. When applicants inform U.T. Arlington admissions officials in writing of their decision, U.T. Arlington will not consider in the admissions decision any academic course credits or grades earned 10 or more years prior to the starting date of the semester in which the applicant seeks to enroll. Applicants who decide to apply under this statute may not receive any course credit for courses taken 10 or more years prior to enrollment under academic fresh start.

### Postgraduate/Professional Programs

Applicants who have earned baccalaureate degrees under the “academic fresh start” statute, Section 51.931 of the Texas Education Code, and who apply for admission to a postgraduate or professional program will be evaluated on only the grade-point average of the course of work completed for that baccalaureate degree and the other criteria stated herein for admission to the postgraduate or professional program.

## Application Deadline and Admission Requirements for International and U.S. Resident Alien Applicants

An international or U.S. Resident Alien applicant must file an official International Student Application form available online through the Virtual Graduate Admissions Counselor or by a request made to the Graduate School office. The application and following required credentials should be submitted preferably 120 days prior to the date of expected enrollment: 1) all international students must submit a nonrefundable application evaluation charge of \$60. U.S. Resident Alien applicants **WITH** foreign college or university work must submit a non-refundable application evaluation charge of \$60. U.S. Resident Alien applicant **WITHOUT** foreign college or university work must submit a non-refundable application charge of \$30; 2) one, but preferably two, official copies of marksheets, diplomas or transcripts (as defined in the section titled “Application Documentation Requirements: Required Official Transcripts, Marksheets, Diplomas and Standardized Tests”) of all undergraduate and graduate coursework; 3) official GRE or GMAT test score as specified by the department or program of application to which application is being made; 4) official TOEFL or TSE test score, if applicable; 5) three letters of recommendation; and 6) financial and/or immigration documentation as specified in the application instructions.

## Calculation of the Grade-Point Average (GPA) (International Colleges and Universities)

The calculation of the GPA for international applicants and U.S. resident aliens who have earned degrees from colleges or universities in the United States follows the policies and procedures for U.S. applicants. The diversity of marksheets and transcripts from foreign universities requires flexibility in calculating approximate equivalents of U.S. GPAs. Generally, GPAs for applicants with foreign degrees are calculated using the final grade for courses taken in the last two years of the applicants' undergraduate program. For an applicant who applies pending receipt of the bachelor's degree, the GPA calculation will include final course grades for the last two years of undergraduate work available at the time the application is submitted for processing. All grades are converted to the U.S. 4-point scale, pluses and minuses, graduate courses, and personal improvement courses such as physical education are not included in these calculations.

## Special Admissions Programs Advanced Admission of Outstanding U.T. Arlington Undergraduates

Upon the recommendation of the Graduate Advisor, outstanding graduates of The University of Texas at Arlington may be admitted to a master's degree program by advanced admission. To qualify, the student must meet the following minimum requirements:

1. The student must have graduated from a commensurate bachelor's degree program at U.T. Arlington no more than one academic year prior to the semester for which admission to a graduate program is sought. A commensurate bachelor's degree program is one that is a normal feeder program for the master's degree program to which the student seeks admission. Undergraduate students in their final year of study are also eligible; in such cases, advanced admission is conditional upon successful completion of the bachelor's degree.
2. The student's grade-point average must equal or exceed 3.5 in each of three calculations: (a) the grade-point average as calculated in the Graduate School for admission purposes; (b) all work completed to date; and (c) all U.T. Arlington advanced undergraduate work in the commensurate program, based on at least 30 semester hours of work.

Students who qualify for advanced admission will be admitted directly to the Graduate School without completing the application for admission, submitting an application evaluation charge or taking the GRE or GMAT. Students who believe they may qualify for this program should contact the appropriate Graduate Advisor. Some programs may require a higher grade-point average to qualify. Not all graduate programs participate in Advanced Admission of Outstanding Undergraduates.

## Waiver of the Graduate Record Examination

Upon recommendation of the Graduate Advisor, outstanding U.T. Arlington graduates may qualify for waiver of the requirements for the Graduate Record Examination (GRE). To qualify, the applicant must meet the following minimum requirements:

1. The student must have graduated from a commensurate bachelor's degree program at U.T. Arlington no more than

three academic years prior to admission to the graduate program (as measured from the start of the semester for which admission is sought). A commensurate bachelor's degree program is one that is a normal feeder program for the master's degree program to which the student seeks admission. Undergraduate students in their final year of study are also eligible; in such cases, admission with the GRE waiver is contingent upon successful completion of the bachelor's degree.

2. The student's U.T. Arlington grade-point average must equal or exceed 3.0 in the following calculations: (a) as calculated for admission to the Graduate School; (b) overall; (c) in the major field; and (d) in all upper-division work.

Applicants qualifying for waiver of GRE who do not qualify for advanced admission, must comply with all other requirements for admission, i.e., submitting the application for admission, paying fees, providing official transcripts from other institutions, and meeting any requirements established by the admitting graduate program. The GRE waiver must be recommended by the Graduate Advisor at the time of admission. The waiver of GRE program applies to applicants for master's degree programs only. Some programs may require higher grade-point averages to qualify. Not all graduate programs participate in the GRE waiver program.

## Non-Degree Seeking (Special) Applicants

A person wishing to take graduate courses at The University of Texas at Arlington but not planning to pursue a graduate degree may be admitted as a special non-degree seeking student with approval of the Dean of Graduate Studies and concurrence of the Committee on Graduate Studies in the area in which the applicant wishes to study. In most cases, admission as a special non-degree seeking student is granted only for the purpose of participating in special graduate course offerings, or for taking courses to be transferred to another institution. Under normal circumstances, a student who has been denied admission to or been dismissed from the Graduate School will not be permitted to enroll as a special non-degree seeking student.

An applicant for special non-degree seeking student admission must submit a completed "Special Non-Degree Seeking Student Application" form available online through the Virtual Graduate Admissions Counselor and official transcripts of previous college work showing evidence of an undergraduate degree and, if applicable, a graduate degree. Special non-degree seeking student admission status is granted for the semester for which the application is submitted. Further enrollment as a special non-degree seeking student must be approved on a semester-by-semester basis. Special non-degree students may not hold graduate assistantships or enroll in research, thesis, internship or dissertation courses.

Up to 12 graduate level (5000 and above) semester credit hours earned as a special non-degree seeking student may be applied to a graduate degree program upon recommendation of the appropriate Committee on Graduate Studies and the approval of the Dean of Graduate Studies, subject to the policies on grades and graduate credit described on pages 32-34 in this catalog. All grades in courses taken as a special non-degree seeking student will be considered in computing a student's graduate grade-point average.

A former or currently enrolled special student wishing to apply for admission to a graduate degree program must submit a regular Graduate School Application for Admission form, all supporting documents listed in the Admission section of this catalog, and the appropriate application evaluation charge. Admission as a special

student in no way guarantees subsequent unconditional admission into a graduate program or into the Graduate School.

**NOTE:** Immigration regulations do not always permit International Students to study as special non-degree seeking students. If you are an International Student, please contact the Graduate School before submitting a Special Non-Degree Seeking Student Application to determine if you may enroll in this status.

### Changing Starting Semester, Program, or Degree Level Prior to Admission at UTA

Applicants wishing to change the semester in which they plan to start study at UTA, programs in which they wish to be considered for admission, or degree levels for which they initially applied, may request that their application be reprocessed for possible admission. The form titled "Request To Update/Reactivate Application" can be obtained online through the Virtual Graduate Admissions Counselor and used for these purposes. The initial admission decision does not automatically apply when an applicant requests these types of changes to their application. When a request is received, the student's application is thoroughly re-evaluated to ensure it is complete and current and a new admission decision is made. The appropriate U.S., Resident Alien or International Student application evaluation charge must be paid in order to begin processing a request. A person must reapply (complete a new application, submit new copies of transcripts, marksheets, diplomas, test scores, letters of reference, and all other required materials) to the Graduate School and pay the appropriate evaluation charge if more than a year has passed since initial admission or the last update/reactivation request.

### Readmission

A student previously enrolled in The University of Texas at Arlington Graduate School wishing to resume graduate work after an absence of a fall or spring semester or longer (summer excluded) must submit an application for readmission and pay the required application evaluation fee. The Application for Readmission is available online through the Virtual Graduate Admissions Counselor or by request made to the Graduate School office. An application evaluation fee will be required for each readmission request. International students and U.S. Resident Alien students should submit this form 120 days prior to their expected semester of enrollment and U.S. citizen students 40 days prior to their expected date of enrollment.

Former students enrolled at other institutions during their absence from UTA (including those in UTA concurrent enrollment) must submit official transcripts showing such coursework to the Graduate School. Returning students wishing to change their graduate major or program upon readmission should consult the section entitled "Change of Graduate Major or Program" in this catalog. Those who wish to apply after an absence of five years or more are required to complete a new student application. New student applications for admission must be made on official application form available online through the Virtual Graduate Admissions Counselor or by request made to the Graduate School office.

## Graduate Student Advisement

After being admitted, students should confer (preferably in person) with the Graduate Advisor of their major area to become familiar with specific departmental regulations, particularly those that require additional examinations upon entrance. After receiving registration materials, students should consult with the Graduate Advisor in the major area at the time and place indicated in the registration instructions regarding details of registration, course program and other procedures. It is important that a student wishing to take courses for graduate credit consult the appropriate Graduate Advisor before registering, as each student's program of work must be approved by the Graduate Advisor, the Committee on Graduate Studies, the student's supervising committee and the Dean of Graduate Studies. Failure to consult with the Graduate Advisor could result in the student's enrolling for courses that are not applicable toward meeting graduate degree requirements. Graduate Advisor contact information is available from <http://grad.uta.edu>.

## Registration

Students should be familiar with all dates on the Graduate School calendars printed in this catalog or online at [www.uta.edu/uta/acadcal](http://www.uta.edu/uta/acadcal). Specific registration instructions are published by the Registrar several times each year and should be consulted for procedures, dates and deadlines. International applicants should consult the "Registration and Orientation for International Students" section in this catalog and the International Student Advisor in the U.T. Arlington International Office for registration regulations.

U.T. Arlington offers both telephone and Web registration. Students may also use these systems to check their eligibility to register and to check open class sections. To register on the Web, students should access [www.uta.edu/registrar](http://www.uta.edu/registrar). To register by telephone, students should call 817-272-2SAM.

For more information on course schedules, consult the current Schedule of Classes or go to [www.uta.edu/schedule](http://www.uta.edu/schedule).

## Restrictions on Admission

### General Restriction

The University of Texas at Arlington may limit the number of students accepted in some programs if the number of applicants exceeds capacity of available facilities.

### Faculty Members

Members of the U.T. Arlington faculty holding an appointment at the rank of instructor or above may not pursue a graduate degree at the University.

# Tuition, Fees, and Charges

[www.uta.edu/fees](http://www.uta.edu/fees)

Tuition, fees, and charges are subject to change. Charges will be effective upon date of enactment and will be reflected in tuition, fees, and charges assessed. Tuition, fees, and charges are authorized by state statute; however, the specific amounts and the determination to increase the fees and charges are made by The University of Texas at Arlington administration and The University of Texas System Board of Regents.

**Tuition is charged based on course of study; therefore a precise semester registration total may be calculated by accessing the Registration Cost Estimation site at [www.uta.edu/fees](http://www.uta.edu/fees).** In addition, you must add the amount of the actual college, course, and/or section specific fees, which are obtained in the printed or online Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule).

Graduate students who enrolled under the Summer 1999 or subsequent catalogs will be charged non-resident tuition under the following conditions: A doctoral student must pay non-resident tuition beginning the first long semester in which a) the student has been enrolled previously as a graduate student for 14 or more long semesters, AND b) the student has accumulated more than 99 semester credit hours of doctoral study at UTA. Students exceeding both limits will not be eligible for assistantships supported by state funds.

A Designated Tuition discount will be given to students who meet ALL of the requirements published at [www.uta.edu/fees](http://www.uta.edu/fees) (select Designated Tuition discount).

Failure to pay tuition, fees, and charges by the census date constitutes voluntary semester withdrawal resulting in the student's financial responsibility for approximately 50 percent of their total registration.

## Description of Tuition, Fees, and Charges

Tuition, fees, and charges are assessed to students based on semester credit hours (SCH), a set charge per semester, or specific services. They are either required by all students, charged to everyone taking specific courses or anyone receiving specific services, or charged only for voluntary products or services. The number in parentheses is the statute number within the *Texas Education Code* authorizing the tuition, fees, and charges. Refer to [www.uta.edu/fees](http://www.uta.edu/fees) and choose Tuition, Fees, and Charges for a detailed description.

1. Graduate Texas Resident Tuition: Required \$169-\$189 per SCH; includes twice the undergraduate statutory rate (\$96 per SCH) plus designated tuition (\$73-\$93 per SCH) (54.008) (54.051) (54.0513)
2. Graduate Non-Texas Resident Tuition: Required \$484-\$504 per SCH; includes non-resident tuition (\$350 per SCH) plus Graduate Tuition Differential equal to the undergraduate statutory rate (\$48 per SCH) plus Graduate Programs Enhancement Charge (\$13 per SCH) plus designated tuition (\$73-\$93 per SCH) (54.008) (54.051) (54.0513) (55.16)
3. Alternative TASP Remedial Fee: Specific \$75 (54.501)
4. Application Charge: Specific \$30 (55.16)
5. Audit Fee: Voluntary \$20 for enrolled U.T. Arlington students; \$100 for non-enrolled students (54.504)
6. Campus and Community Involvement Records Fee: Voluntary \$5 for registration and 5 official copies; \$2 for additional copies (54.504)
7. Career Services Fee: Voluntary \$25 (54.504)
8. Catalog Fee: Voluntary \$3 (\$6 if mailed) (54.504)
9. Check Cashing Fee: Voluntary \$0.25 per check or 1 percent of check amount (whichever is greater) (54.504)
10. Computer and Information Technology Charge: Required \$26 per SCH (\$330 maximum) (55.16)
11. Counseling and Advising Charge: Specific (55.16)
  - a. College of Business Administration Majors and Pre-Majors: \$12 per semester
  - b. College of Engineering Majors and Pre-Majors: \$20 per semester
12. Course Charges: Specific \$2-\$500 per course in addition to required tuition, fees, and charges (55.16)
13. Credit by Examination Fee: Voluntary \$20-\$100 per course (54.504)
14. Delinquent Accounts Receivable Fee: Specific \$25 per month (54.504)
15. Distance Learning Fees:
  - a. Distance Learning Courses: Specific \$20-\$500 per course (54.504)
  - b. Engineering Internet Fee: Specific \$75 per SCH (54.504)
  - c. TAGER Fee: Specific \$75 per SCH (54.504)
  - d. TeleCampus Fee: Specific \$75-\$213.50 per course (54.504)
  - e. Video Tape Fee: Specific \$142 per SCH (54.504)
16. Drop Fee: Specific \$3 per SCH (54.504)
17. Duplicate Diploma Charge: Voluntary \$20 (55.16)
18. English Tutorial Clinic Fee: Specific \$25 per course (54.504)
19. EDUC Practice Exam Charge: Voluntary \$10 for enrolled U.T. Arlington students; \$25 for non-enrolled students (55.16)
20. Facilities Use Charge: Voluntary (55.16)
  - a. School of Architecture \$30-\$50 per semester
21. Field Placement Insurance Charge: Specific (55.16)
  - a. School of Nursing: \$61 per year
  - b. School of Social Work: \$12 per course
22. Field Trip Fee: Specific varies based on actual cost (54.504)
23. Graduate Applicant Admission Deferral Fee: Specific \$30 U.S. Student; \$60 International Student (54.504)
24. Graduate Program Enhancement Charge (included in the graduate tuition differential rate paid by non-Texas resident students): Specific \$13 per SCH (55.16)
25. Graduate Readmission Fee: Specific \$30 U.S. Student; \$60 International Student (54.504)
26. Graduate Services Charge: Specific (55.16)
  - a. College of Business Administration \$24 per student
27. Graduation Charge: Specific \$15 (55.16)
28. Graduation Charges for Doctoral and Master's Candidates: Specific and Voluntary (54.504)
  - a. *In Absentia* \$15
  - b. Dissertation and Thesis Charges (actual costs will be charged)
    1. Binding \$30 maximum
    2. Microfilming: Dissertation \$55 (\$100 maximum)
    3. Microfilming: Thesis \$45 (\$75 maximum)
    4. Copyright Registration (optional) \$45 (\$75 maximum)
    5. Mailing \$8-\$45
    6. Personal Copies (optional) \$6.50
  - c. Late Application Fee \$50

## TUITION, FEES, AND CHARGES

29. ID Card Activation Charge: Required \$10 per semester (55.16)
30. ID Card Replacement Charge: Specific \$10 (55.16)
31. Installment Tuition Handling Fee: Specific \$10 per billing (\$20 per semester maximum) (54.007)
32. Instrument Users Charge: Specific \$10-\$55 per course (55.16)
33. Intercollegiate Athletics Fee: Required \$8.50 per SCH (\$115 maximum) (54.5121)
34. International Education Fee: Required \$1 per semester (54.5132)
35. International Student Application Charge: Specific \$60 (55.16)
36. International Student Health Insurance Charge: Specific variable (to match premium for approved U.T. System student insurance plan) (55.16)
37. International Student Services Charge: Required \$65 per semester (55.16)
38. Laboratory Fees: Specific \$2-\$30 (54.501)
39. Late Registration Activity Fee: Specific \$2 per SCH (54.504)
40. Library Fees: Specific and Voluntary variable (see below) (54.504)
  - a. Dissertation/Thesis Handling: \$15
  - b. Inter-Library Loan Late Fee: \$2 per day (\$50 maximum)
  - c. Lost or Damaged Items: \$35 processing fee plus any fines accrued and actual cost of item
  - d. Overdue Fees:
    1. Equipment: \$12 per hour (\$60 maximum)
    2. Recalled Items: \$2 per day (\$50 maximum)
    3. Regular Check-Out: \$0.25 per day (\$25 maximum)
    4. Reserve Items: \$1.20 per hour (\$50 maximum)
  - e. Preservation on Photo Print Orders: \$4 per print
  - f. Special Collections Fee: \$50 for 1-25 images; \$100 for 26+ images
  - g. Special Collections Photocopy Fee: \$0.15 per image for books and bound materials; \$0.25 per image for manuscripts; \$0.35 per image for clippings
41. Library Services Charge: Required \$15 per SCH (\$172.50 maximum) (55.16)
42. Locker Rental Charge: Voluntary \$3-\$25 (55.16)
43. Math Clinic Charge: Specific \$15 per course (55.16)
44. Medical Services Fee: Required \$38.50 per semester (54.50891)
45. Multi-Media Charge: Specific (College of Business Administration, College of Engineering, School of Nursing, Department of Communication) \$3 per course (55.16)
46. Music Fee: varies per course (54.051)(L)
47. Music Instrument Fee: Specific \$25 (55.501)
48. Payment Deadline Fee: Specific \$2 per SCH (54.504)
49. Post Census Registration Activity Fee: Specific \$250 per semester (54.504)
50. Recreational Facility Fee: Required \$9 per semester (54.5122)
51. Registration Charge: Required \$5 per semester (55.16)
52. Returned Check Fee: Specific \$25 per check (54.504) (55.16)
53. Sponsored Student Charge: Specific \$200 per semester (55.16)
54. Student Services Fee: Required \$9.60 per SCH (\$115.20 maximum) (54.503)
55. Student Union Fee: Required \$39 per semester (54.515)
56. Teacher Certification Deficiency Plan Charge: Voluntary \$25 per plan for U.T. Arlington graduates; \$35 per plan for non-U.T. Arlington graduates (55.16)
57. Telephone Registration Facsimile Fee: Voluntary \$2 (54.504)
58. Test Charges: Specific \$5-\$125 (54.504)
59. Transcript Charges: Voluntary \$5 (55.16)

## Other Registration Expenses

### General Property Deposit

The *Texas Education Code*, Section 54.502(a), directs that "an institution of higher education *may* collect a reasonable deposit not to exceed \$100 from each student to insure the institution against losses, damages, and breakage in libraries and laboratories. The deposit shall be returned on the withdrawal or graduation of a student, less any amount necessary to cover any loss, damage, or breakage caused by the student." The University of Texas at Arlington shall collect a property deposit of \$10.

Deposits are refunded automatically at the end of the semester to students who graduate or withdraw. Deposits are refunded by request at the end of the semester to students who neither graduate nor withdraw, but do not plan to return. Property deposits which are dormant for four years are forfeited into the Student Deposit Scholarship Fund.

### International Student Health Insurance

International students are required to purchase The University of Texas at Arlington Student Health Insurance Plan while enrolled at the University. Exceptions to this requirement are:

- Coverage by the U.T. Arlington faculty/staff insurance
- Continuing coverage under a mandatory government-sponsored health plan
- Continuing coverage under a mandatory employer-sponsored insurance plan

Proof of coverage and benefits provided must be documented and must be comparable to the University-sponsored plan. All policies under the three categories of exceptions must contain at least a \$7,500 repatriation benefit and a \$10,000 medical evacuation benefit. All policies must meet USIA regulations for those in "J" status. If coverage does not include medical evacuation and repatriation, supplemental policies covering those items will be made available.

### Mav Express Card Charge

As noted under Tuition, Fees, and Charges, each student at U.T. Arlington is required to pay a \$10 Mav Express Card activation charge for the fall, spring, and 11-week summer semesters. The 5-week summer session, Maymester, and Winter Session are \$5 each. The Mav Express Card is used for accessing controlled facilities, checking books from the Library, cashing checks at Bursar Services, as well as for admission to various University activities such as athletic events and for other situations in which personal identification is required. As an option, a student may choose to deposit money on the Mav Express Card. This debit feature is called Mav Money. Students may use Mav Money at Dining Services, Bursar Services, University Center, University Bookstore, vending machines and many other locations on and off campus. Deposits may be made and account activity reviewed online at [www.uta.edu/mavexpress](http://www.uta.edu/mavexpress). The Mav Express Card is a permanent card. As a student registers for a semester, the card is automatically validated. It is not necessary to obtain an additional Mav Express Card unless the student loses or destroys the card. The replacement charge for a lost or destroyed card is \$10.

### Maverick Parking Garage

The optional parking garage is available at an additional per semester charge, plus gate card deposit. Day and night passes are offered,



however the official meeting time of all classes must be 5:30 p.m. or later to qualify for the night pass. Passes must be picked up at the garage and are only for parking in the garage. The garage is normally closed between semesters. A parking permit must be purchased for parking elsewhere on campus.

Contact the Maverick Parking Garage at 817-272-2370 for specific rates and availability.

### Parking Permit Charge

All students who drive to school need a permit to park legally on campus. During registration, students should indicate that they need a permit for their vehicle, if they want the charge to be billed to their registration account. Students registering by telephone or on the Web will have to pick up their current University permit by the first day of class. The University Police/Parking Office will no longer mail these permits out but will provide an alternate location for pick up and this information will be listed on your registration information. You can always pick up your permit at the Parking Office located at 700 S. Davis Drive.

If students withdraw from school any time before classes begin or before the census date, they must bring their permit to the Parking Office to receive a full/partial refund. If the permit is not returned, a refund cannot be given and the student is responsible for full payment. Students who lose or misplace their permits will be charged full price for the replacement. If the Parking Office is not notified of loss or non receipt of permit, the student will be held responsible for all fees pertaining to permit.

Students are responsible for picking up a copy of the Rules and Regulations booklet containing campus parking policies. A copy can be obtained from the Police Web site listed below. The University Police/Parking Office is open 7:30 a.m. to 5 p.m., Monday-Friday and will be open until 7 p.m. only during specific registration and census dates. Persons with disabilities will need to provide the appropriate documentation and should obtain their parking permits from the University Police/Parking Office located at 700 S. Davis Drive. For additional parking information, call 817-272-3907 or visit the Web site [www.uta.edu/police/parking.htm](http://www.uta.edu/police/parking.htm).

## Tuition, Fees, and Charges: Exemptions and Waivers

State law provides for several exemptions or waivers of tuition, fees, and charges. Students qualified for a reduced rate in any of the following categories must have that eligibility certified prior to registration.

For a complete description and eligibility requirements, please go to [www.uta.edu/fees](http://www.uta.edu/fees) and select Exemptions and Waivers. This Web site will also provide department contact information and tuition, fees, and charges that are exempt or waived. Additional information may be found in the Texas Education Code.

- 01 Texas Veteran, *Texas Education Code/Hazelwood Act 54.203(a)*
- 02 Orphan U.S. Military/Texas National Guard, *Texas Education Code 54.203(b)*
- 04 Good Neighbor Scholarship, *Texas Education Code 54.207*
- 05 Hearing or Vision Impaired, *Texas Education Code 54.205*
- 08 Dependent of Texas POW or MIA, *Texas Education Code 54.209*
- 13 Educational Aides Exemption, *Texas Education Code 54.214*

- 14 Distance Learning Only, *Texas Education Code 54.218*
- 19 Non-Resident Out-of-State Distance Education, *THECB Subchapter H, Section 5.153(j&k), Texas Education Code 54.545*
- 20 Academic Common Market, *Texas Education Code 160.07*
- 21 Military & Family Stationed in Texas, *Texas Education Code 54.058*
- 22 Non-Resident Teacher/Professor & Dependents, *Texas Education Code 54.059*
- 23 UTA Employee Fee Waiver, *Texas Education Code 54.5035*
- 24 Teaching/Research Assistant, *Texas Education Code 54.063*
- 25 Competitive Scholar - Academic, *Texas Education Code 54.064*
- 26 Competitive Scholar Non-Academic, *Texas Education Code 54.064*
- 28 RNs in Postgraduate Nursing, *Texas Education Code 54.069*
- 31 NATO, *Texas Education Code 54.057(b)*
- 32 Pilot Program - Mexico, *Texas Education Code 54.060*
- 33 Texas-Mexico Educational Exchange, *Texas Education Code 54.060*
- 34 State Economic Development, *Texas Education Code 54.052(h)*
- 40 Reciprocal Educational Exchange Program, *Texas Education Code 54.060 Vcta 21.901-9. Ch 21; Sub Aa*
- 49 Bordering State Resident, *Texas Education Code 54.060*
- 50 Senior Citizen Waiver, *Texas Education Code 54.210*

### In Absentia Registration Fee

A candidate for a degree who has completed all requirements for graduation by the last date to qualify for *in absentia* registration (see Graduate School calendars) and who needs to register in the University for the sole purpose of having a degree conferred may register *in absentia* with permission of the Graduate Advisor and the Dean of Graduate Studies. To obtain permission, the student should file a Request to Register *in Absentia*. A student registered *in absentia* may not enroll for courses. The *in absentia* registration fee is \$15; no refund is made for the cancellation of an *in absentia* registration. In addition to paying the cost of *in absentia* registration, the candidate must file an application for graduation and pay the diploma fee for the semester of graduation.

### Academic Common Market

The Academic Common Market is an interstate agreement for sharing academic programs through an exchange of students across state lines. Fifteen southern states take part in the Academic Common Market. Texas, Florida and North Carolina participate at the graduate level only. Selected out-of-state programs that are not offered in a student's home state can be accessed through the Academic Common Market at in-state tuition rates.

For information on the graduate programs at The University of Texas at Arlington that are available through the Academic Common Market and the states that have access to those programs, contact the Graduate School or the Academic Common Market coordinator in the home state.

Further information on the Academic Common Market may be obtained from the Texas State Coordinator for the Academic Common Market: Texas Higher Education Coordinating Board, P.O. Box 12788, Austin, Texas, 78711. Phone: 512-427-6525. E-mail: [linda.mcdonough@theeb.state.tx.us](mailto:linda.mcdonough@theeb.state.tx.us)

## Payment of Tuition, Fees, and Charges

Your registration will be billed on a "Registration Account Statement" approximately one month before the beginning of the semester. If you register after the semester bill date, you may not receive a bill and must not wait for a bill to pay. Additionally, if your registration amount changes for any reason after this date, you will not receive an adjusted bill and you must not wait for a bill to pay.

- **Required Payment:** Your required payment is the total amount of your unpaid previous and current semester charges. Additionally, if your tuition, fees, and charges increase for any reason, such as residency status changes or schedule adjustments, you must pay your new TOTAL semester amount, as well as all past due amounts. This required payment must be made prior to the close of business on the published semester payment due date. Changes resulting in additional charges after the payment due date, must be paid immediately. Your required payment can be obtained through the following sources:

- o Kiosk, located in the basement of Davis Hall
- o SAM, call 817-272-2726 and choose menu option #2/ Billing and Payment Services
- o Bursar Services, Rm. 130, Davis Hall, 817-272-2172

- **Withdrawal For Non-Payment:** Your required payment must be received and posted to your account prior to the close of business on the census date to avoid withdrawal for non-payment and additional penalties. Failure to pay tuition, fees, and charges by the census date constitutes voluntary semester withdrawal resulting in the student's financial responsibility for approximately 50 percent of their total registration.
- It is the student's responsibility to withdraw from the University prior to the first official university class day to avoid financial obligation. *Students will not be automatically dropped for non-attendance.* Please refer to the current Schedule of Classes or visit our Web site, [www.uta.edu/fees](http://www.uta.edu/fees), for the appropriate withdrawal refund/obligation. Payments returned by the bank unpaid, or failure to make payment for registration does not release financial obligation.
- Other university charges, such as loans, housing, library fines, etc., are billed on a separate "Campus Life Account Statement" at the beginning of each month.

Visit [www.uta.edu/fees](http://www.uta.edu/fees) for information on due dates, deadlines, penalties and fee refunds.

Failure to pay a debt owed to the University will be reported to national credit bureaus and subject to additional fees and collection efforts, as allowed by law.

### Payment Options

- **Installment Payment Option:** (Available in Fall and Spring semesters only) The Installment Payment Option is available to all students and requires payment of at least one half of your total current semester registration, plus all past due amounts, by the semester payment due date. Additionally, if your tuition, fees, and charges increase for any reason, such as residency status changes or schedule adjustments, the new higher total must be used in your current semester calculations. The remaining balance will be billed on your Registration Account. The service charge for choosing this option is \$10 for each additional billing (max \$20 per semester) and will

be added to your Registration Account. **By using the installment plan, you will not be eligible for a Designated Tuition discount.**

Note: The following quotation from *Texas Education Code* 54.007 applies to installment payments due: "A student who fails to make full payment of tuition and fees, including any incidental fees, by the due date may be prohibited from registering for classes until full payment is made. A student who fails to make payment prior to the end of the semester may be denied credit for the work done that semester."

- **Financial Aid:** Please read the Financial Aid section of this catalog or visit [www2.uta.edu/fao/](http://www2.uta.edu/fao/) for information.
- **Enrollment Loans:** Loans are offered only if funds are available and the borrower meets underwriting requirements published at [www.uta.edu/fees](http://www.uta.edu/fees). Loans are available at Bursar Services, Rm. 130, Davis Hall. Please refer to the current Schedule of Classes or visit our Web site, [www.uta.edu/fees](http://www.uta.edu/fees), for specified dates.

Questions may be directed to Bursar Services, 817-272-2172. Detailed student account information may not be released to anyone other than the student without the student's written permission in Bursar Services.

### Payment Methods and Locations

The University accepts cash, checks, traveler's checks, money orders, and the following credit cards: Master Card, Visa, Discover, and American Express. Any form of payment (check, electronic bank draft, or credit card) that is returned unpaid can result in enrollment withdrawal and additional penalties.

- **Web:** Pay by credit card or electronic bank draft/ACH transfer from your checking or savings account at [www.uta.edu/makepayment](http://www.uta.edu/makepayment). Please allow two business days for payment processing.
- **Phone:** Credit card payments can be made through SAM, the university's automated telephone system, by calling 817-272-2726, and choosing menu option #2/billing and payment services.
- **Mail:** Check, traveler's check, or money order payments should be mailed, along with your payment stub, in the envelope provided in your monthly bill. If you have not received your bill, mail payment to Bursar Services, Box 19649, Arlington TX 76019-0649. Please include your student ID number. **Do not mail cash.**
- **24-Hour Drop Box:** Check, traveler's check, or money order payments may be placed in the drop box located just inside the north entrance of Davis Hall adjacent to Bursar Services. Please include your student ID number. Do not deposit cash in the drop box.
- **In Person:** All forms of payment mentioned above, other than electronic bank draft, can be made in person at Bursar Services, Rm. 130 Davis Hall.

## Concurrent Enrollment

### Cooperative Programs Between University of Texas System Components

A student concurrently enrolling at two or more University of Texas System components may register and pay tuition, fees, and charges for all courses through the student's home institution. Detailed procedures may be obtained from the registrar of the student's home in-

stitution. The concurrent enrollment agreement and waiver of specified fees and charges applies only to students following the concurrent enrollment procedures specified by the registrar of the home institution.

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

- Tuition at an appropriate rate
- Applicable laboratory fees and special course charges
- Designated tuition at the appropriate rate
- Any other fees and charges that are required at the host institution that are not charged at the home institution

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

Some institutions have a reciprocal agreement for honoring parking permits. Details may be obtained from the police departments on each campus.

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

Concurrent students wishing to add or drop courses must do so in compliance with the host institution's policy. On or before the host institution's Census Date, adds or drops may be done through the home institution's registrar. After the Census Date, drops must be done at the host institution.

### Sponsored Students/Texas Tomorrow Fund Participants

It is the student's responsibility to contact Bursar Services, Rm. 130, Davis Hall, 817-272-2172, each semester prior to the payment deadline date to confirm that an authorization has been received and is sufficient to secure the current semester registration.

## Residency Regulations

Resident classifications are determined in accordance with Title 19, Chapter 21, Subchapter B of the *Texas Administrative Code* and the rules of the Texas Higher Education Coordinating Board for determining residence status. Except as specifically provided by law, an individual classified as a non-resident student must pay tuition, fees, and charges required of non-resident students. Students may access the Coordinating Board's rules at [www.theccb.state.tx.us/CBRules/](http://www.theccb.state.tx.us/CBRules/).

An independent individual 18 years of age or older who moves to Texas and is gainfully employed in Texas for 12 months prior to enrolling in an institution of higher education is entitled to classification as a resident student unless the individual is in Texas for some purpose other than establishing residence in the state. A student enrolling in an institution of higher education prior to having lived in Texas for 12 months immediately preceding the time of enrollment will be classified as a nonresident student.

The residence of a dependent who is under 18 years old is generally the residence of the parent with whom the individual lives. The residence of a dependent 18 years of age or older is the residence of

the parent who claims the individual as a dependent for federal income tax purposes.

After living in Texas for at least 12 months, a nonresident student may be reclassified as a resident student if business and personal facts or actions are unequivocally indicative of a fixed intention to reside permanently in Texas. A nonresident student classification is presumed to be correct as long as the residence of the individual in Texas is primarily for the purpose of attending an educational institution.

Students claiming resident status must provide documentation to confirm that they have a legal right to be classified as resident students. Students must affirm under oath that they are entitled to be classified as residents for purposes of tuition. Foreign students living in the United States under a visa permitting permanent residence, aliens who are permitted by Congress to adopt the United States as their domicile while they are in this country, and individuals who obtain permanent resident status while in Texas have the same privilege of qualifying for Texas resident status for tuition purposes as do U.S. citizens.

Generally, a student attending The University of Texas at Arlington who is not classified as a resident student will be charged non-resident tuition. Certain nonresident students, however, are entitled to pay tuition and other fees required of Texas residents. For example, military personnel assigned to duty in Texas, and their spouses and dependent children, are entitled to pay the same tuition as a Texas resident if certain documentation is provided. Similarly, students who hold a competitive academic scholarship of \$1,000 per year or more awarded through The University of Texas at Arlington are entitled to pay resident fees and charges. Other exceptions to the requirement that nonresident students pay nonresident tuition, fees, and charges are included in the Texas Higher Education Coordinating Board rules for determining residence status.

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

Residency appeals are made to the Residency Appeals Committee. Decisions of the committee are final.

## Audit of Student's Schedule and Fee Audit Adjustments

All adds, drops and other registration adjustments through the Census Date each semester will cause an immediate, automatic fee recalculation. Withdrawals made on or after the first official university class day, as well as add/drops or tuition adjustments done after the Census Date will be audited approximately six weeks into the semester in the fall and spring, sooner in the short semesters. At that time, the appropriate charges or credits will be added to the student's registration account.

## Refunds

### Dropping Course(s) but Continuing Enrollment

If a student remains enrolled in at least one course, he/she will be refunded in full for any course dropped by the census date. Students who drop hours after the end of the published add/drop period will be charged a non-refundable \$3/sch Drop Fee. If a course is dropped **after the census date**, the student is financially responsible for the full cost of the course.

### Total Withdrawal from School

A student who officially withdraws through the Student Administration section of the Registrar's Office will receive a refund according to the schedule below.

1. A student who withdraws prior to the first official university class day will receive a 100 percent refund.
2. If the foregoing condition is not met, then the refund shall be as shown below. Class days noted are official university class days. They are not the individual student's class meeting days.

#### Fall and Spring Semesters

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

#### Summer Sessions

During class days 1 through 3	80%
During class days 4 through 6	50%
After sixth class day	no refund

#### Intersessions

On first class day	80%
On second class day	50%
After second class day	no refund

3. Parking refunds must be applied for separately at the Parking Office, 700 S. Davis Drive.

### Return of Federal Title IV and Other Aid Funds

Effective with the fall semester of 2000, a federally mandated statutory schedule must be used to determine the amount of federal aid funds students have earned when they cease attendance based on the period the students were in attendance. The amount of federal aid earned is the percentage of federal aid that has been earned, multiplied by the total amount of federal aid that was disbursed for the period. Any funds this pro-rata schedule show to be unearned must be returned to the aid programs by the students. This schedule will be used until 60 percent of the period has passed, after which all aid funds will be considered to have been earned.

Repayment of other aid funds may also be required as the result of dropping classes or resigning from a term. Contact the Financial Aid Office for more information.

### Disbursement of Refunds

Enrollment withdrawal refunds cannot be made until an audit of tuition, fees, and charges has been performed. Refunds normally cannot be issued until approximately six weeks after a semester begins in the fall and spring semesters, sooner in short semesters. For your convenience, direct deposit of any refund is available. Contact Bursar Services for information.

Inquiries concerning refunds should be directed to Bursar Services, Rm. 130, Davis Hall, 817-272-2172.

# Student Services and Financial Aid

## Housing

210 University Center • Box 19349 • 817-272-2791  
[www.uta.edu/housing](http://www.uta.edu/housing)

The University owns and operates residence halls, apartments, and houses for U.T. Arlington students. Residence hall features vary by community. However, all residence hall students enjoy a double or private room on campus that includes Internet, cable TV, and metro phone service, and staff who live on site. Nineteen on-campus apartment communities and 19 houses are available to students as well. For more information about University-owned and managed housing, call 817-272-2791 or visit [www.uta.edu/housing](http://www.uta.edu/housing). Online applications are available on the Web site as well.

Centennial Court, a privately-owned, apartment-style community for U.T. Arlington students, is also located on the U.T. Arlington campus. Call 817-436-4800 for more information about Centennial Court.

## Health Services

605 S. West Street • Box 19329 • 817-272-2771  
[www.uta.edu/healthservices](http://www.uta.edu/healthservices)

Health Services (HS) is an on-campus, outpatient facility whose mission is to maintain the optimum physical and emotional health of U.T. Arlington students and faculty/staff through the provision of quality, accessible, comprehensive and cost-effective primary health care.

Health Services is staffed and equipped to care for most routine health needs. Many services are free. A reasonable fee is assessed for services such as medications, x-rays, laboratory tests, etc. Health Services is partially funded by a Medical Services Fee.

Health Services and facilities are available to all enrolled, fee-paying students. Students who choose **not** to enroll for a semester but who plan to enroll the following semester may receive treatment during the missed semester by paying the Medical Services Fee that is usually charged in their tuition. Student employees, such as GTAs, GRAs, TAs, and RAs, may utilize HS as students and therefore not pay a doctor-visit fee. Faculty/staff may receive treatment at Health Services for urgent care and other selected services on a fee-for-service basis, by appointment (817-272-2745). Student employees and faculty/staff should ask whether Health Services accepts their U.T. Arlington employee insurance plan and should furnish appropriate proof of insurance coverage when accessing HS.

**Staffing:** The staff includes full-time physicians and registered nurses, pharmacists, laboratory and x-ray technologists, clinical psychologists, a substance abuse specialist, a student development specialist, and related personnel. Health Services provides medical services during those times when the University is open. Services are not available during scheduled University holidays. During these periods, medical care received from another source will be the patient's financial responsibility.

## Services Available

**General Medicine:** Students with common medical problems are diagnosed and treated on a walk-in basis. Elective minor surgical procedures such as removal of cysts, moles, and warts, are available. Appointments are required for both the initial evaluation and the surgery.

**Allergy-Antigen Injections:** If patients wish to receive allergy-antigen injections at Health Services, their allergist should mail the antigen along with details of the allergies and proposed treatment program to HS for storage.

**Women's Clinic:** Health Services diagnoses and treats most diseases of the female reproductive organs. Consultations, contraceptive advice, routine Pap smears, diagnostic tests for sexually-transmitted diseases (STDs), and breast examinations are performed by appointment (817-272-2713).

**Mental Health:** Psychological and psychiatric assessment and treatment are available to students and faculty/staff by appointment (817-272-2713). Referrals to health agencies or other professionals are made when indicated.

**Laboratory:** The laboratory is equipped to perform all routine determinations. For more sophisticated procedures, specimens are obtained and sent to a reference laboratory for testing.

**Pharmacy:** The pharmacy dispenses reduced-cost medications and provides medication counseling to students and faculty/staff. The pharmacy accepts the U.T. System student health insurance and the faculty/staff prescription plans. Health Services will dispense prescriptions from any licensed physician as long as the medication is in its formulary.

**X-ray:** Health Services performs all routine radiographic studies. After an initial reading by an HS physician, the films are sent to a radiologist for final interpretation.

**Medical Records:** Since medical records are protected under patient/physician confidentiality provisions, these records will not be released to anyone without written authorization from the patient or as provided by law (see the "HIPAA Privacy Act" on our Web site).

**HIV/AIDS:** Education and information are available at no charge and may be given in a one-on-one setting or to campus-related groups. Anonymous testing is available for a small laboratory fee and requires pre- and post-test counseling appointments. Clients are referred to appropriate off-campus facilities, if needed. The UTA brochure, "Human Immunodeficiency Virus Infection (HIV) and Acquired Immune Deficiency Syndrome (AIDS) and Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV)" is available at HS and on the Web site.

**Bacterial Meningitis:** Meningitis, a rare but potentially fatal bacterial infection that affects the brain and spinal cord, strikes about 3,000 Americans each year. Information about meningitis and its symptoms is available on the HS Web site and in the printed Schedule of Classes.

**Substance Abuse Prevention:** At the Substance Abuse Prevention Office, faculty/staff and students may receive health education information at no charge. The Substance Abuse Prevention Coordinator will answer questions or provide general education on substance abuse issues. This free service can be provided as a presentation or by telephone. The UTA brochure, "Information Regarding Illicit Drugs and Alcohol Abuse" is available at Health Services.

**Peer Education:** This three-hour elective course provides students with education and information on a broad range of health and wellness issues. Peer Educators sponsor awareness events and conduct tailored presentations for various groups throughout the year.

**Education:** In the spirit of this educational community, it is hoped that students will also use Health Services as a resource for information on health-related issues and preventive medicine.

**Patient Rights:** Health Services recognizes its responsibility to ensure that every patient, regardless of sex, race, age, beliefs or handicap has

the right to be treated with respect, consideration and confidentiality. Patients should take the initiative to communicate their concerns and questions about problems related to their health condition or medication, unclear procedures and previous health history. Patients have the right to seek a second medical opinion, to change primary or specialty physicians, and to be informed of and refuse to participate in experimental research.

**Transportation:** Health Services is an outpatient facility, and, as such, provides only ambulatory medical services. Patients are responsible for their own transportation to HS. For true emergencies, or when the seriousness of the patient's condition is uncertain, call the University police at 817-272-3003. The police will dispatch officers to the site, and call an ambulance, if needed. These officers are trained in CPR and first aid and can stabilize the patient until an ambulance arrives. This procedure should be followed even when HS is open.

**Indebtedness:** It is the student's responsibility to satisfy indebtedness to Health Services with reasonable promptness. Upon payment, receipts will be issued that can be used for submitting claims to personal insurance companies.

**Health Insurance:** Health Services is not equipped to perform the more extensive diagnostic procedures and services such as those offered by a general hospital. Therefore, all U.T. Arlington students are strongly urged to have adequate health insurance coverage. Students on non-immigrant visas are required to carry health insurance and must show proof of coverage at the time of registration. An optional system-wide Student Health Insurance Plan is available through an insurance carrier by contract with the University. For more information about the Student Health Insurance Plan, contact Health Services at 817-272-2771. Insurance brochures and applications are available at via links on the HS Web site.

**Blood Reserve Fund Plan:** U.T. Arlington, in cooperation with Carter BloodCare, sponsors a blood reserve fund plan for U.T. Arlington students and faculty/staff. To participate in the reserve fund, members are requested to donate regularly during semiannual blood drives held on campus. The release of blood credits is coordinated through Health Services.

## Counseling Services

216 Davis Hall • Box 19156 • 817-272-3671  
<http://counseling.uta.edu>

At the Counseling Services Office, students and alumni can receive assistance in several areas, including academic, career, and personal/emotional counseling. Individual and group sessions are available. Counseling Services also offers many seminars to students designed to help improve academic success, make career decisions, and achieve personal growth and development.

### Personal Counseling

Developing new life skills and perspectives, dealing with extraordinary life events, making personal decisions, and getting help with issues related to difficulties in adjustment, emotions, and interpersonal relationships.

### Academic Counseling

Individual sessions and group seminars are available to address a wide variety of issues including academic skill building, reading

improvement, test-taking strategies, study skills improvement, and time management. At times, we use the Learning and Study Skills Strategies Inventory (LASSI) as a way to assess your use of learning and study strategies.

## Career Development

Individual counseling is available to assist students in the exploration of their interests, abilities, career-related skills, work values, career preparation, resume preparation, and job searches. Students are often encouraged to take the Myers-Briggs Type Indicator (MBTI) and the Strong Interest Inventory as ways of assessing personality characteristics and interests that may suggest suitable career directions. Choices is a computer program that students can use to gather information about many majors, schools, and occupations.

## Assessment Services

201 Davis Hall • Box 19156 • 817-272-2362  
[www.uta.edu/assessment](http://www.uta.edu/assessment)

The following tests are given on national test dates: Graduate Record Examination (GRE) Subject Test and Writing Assessment, Law School Admission Test (LSAT) and the Medical College Admission Test (MCAT). The Miller Analogies Test is scheduled once per month, and the Spoken English Assessment (SEA) is scheduled by appointment. Specialized tests of aptitudes, interests and abilities are also given in conjunction with Counseling Services.

## Career Services

<http://careers.uta.edu>

The mission of U.T. Arlington Career Services is to encourage and educate students and alumni in developing comprehensive career plans and self-directed job search techniques.

Career Services assists students and alumni in finding full- or part-time, internship and co-op employment opportunities. Services provided include career development workshops, job listings, résumé referral, on-campus employment interviews, career days and information on careers, employers and job search techniques.

Career Services has three offices across campus to better serve U.T. Arlington students and employers.

- **Business Career Services** offers part-time, full-time and internship opportunities to students and alumni interested in business careers.
- **Student Employment Services** offers non-degree-required part-time, full-time and internship opportunities to currently enrolled students in all degree programs.
- **University Career Services** offers full-time degreed opportunities to new graduates and alumni in all degree programs.

## Career Services Locations

**University Career Services:** Room 216, Davis Hall, 817-272-2932  
**Business Career Services:** Room 106, Business Bldg., 817-272-5201  
**Student Employment Services:** First Level, University Center (West Entrance), 817-272-2895

## International Office

Lower Level, University Center • Box 19028 • 817-272-2355  
[www.uta.edu/io](http://www.uta.edu/io)

The International Office serves the needs of 3,000 international students and scholars at The University of Texas at Arlington. The staff handles all immigration procedures and provides information, advice and counseling on a variety of issues affecting international students and scholars. The International Office sponsors numerous cultural events and information workshops throughout the year. Information is also disseminated through a listserv of enrolled international students. All new international students must attend international student orientation, hosted by the International Office, before matriculation.

U.T. Arlington offers opportunities for credit-bearing graduate study on exchange programs in Australia, France, Mexico and Norway. Language and cultural studies, which usually do not earn resident graduate credit, can be undertaken on faculty-led or affiliated programs in Argentina, Australia, Austria, Bulgaria, Canada, Chile, China, Costa Rica, Cyprus, Czech Republic, Dominican Republic, Ecuador, England, France, Germany, Greece, Holland, Hungary, Ireland, Israel, Italy, Japan, Korea, Malaysia, Mexico, Morocco, Portugal, Russia, Scotland, Singapore, South Africa, Spain, Switzerland and Thailand. New programs are being developed every year. Students interested in study abroad opportunities, scholarship, travel and work opportunities abroad will find information at the International Office on the Lower Level of the E.H. Hereford University Center or by accessing [www.uta.edu/io](http://www.uta.edu/io).

## Office of Multicultural Services

Lower Level, University Center • Box 19353 • 817-272-2099

The Office of Multicultural Services is committed to fostering the full participation of ethnic minorities at The University of Texas at Arlington by helping create an academic, social and cultural atmosphere conducive to the presence and responsive to the needs of African-American, Native American Indian, Mexican-American and Pacific Island students. It is important that prospective students receive orientation to the diverse and numerous offices designed to assist students at the University. While the Office of Multicultural Services is committed to facilitating full participation of ethnic minorities in every aspect of university life, its doors are open to all students at The University of Texas at Arlington.

Academic assistance services are available to promote a successful learning experience. In addition, seminars and workshops provide leadership training and enhance the social skills and positive self-concepts necessary for successful living. Rich cultural diversity is reflected in the number and variety of minority student organizations on campus.

The **Center for Multicultural Cooperation (CMC)** is a comprehensive, campus-wide outreach initiative for attracting, orienting and retaining minority students. The CMC seeks to recruit minority students in various ways, including the utilization of volunteer students and staff recruiters.

The CMC provides an orientation program for minority students. Students receive a thorough overview on how the campus operates, who to see for a particular problem, and what is required of them if their campus experience is to be successful. The program stresses class attendance, establishing friendships, participating in campus activities and accepting responsibility.

Also, the CMC works to increase minority student retention by providing assistance with academic preparation, academic advising, cultural activities, sociocultural adjustment, financial resources and faculty/staff recruitment. The CMC views retention as a campus-wide effort involving all aspects of the educational process.

In summary, the intent of the CMC is to recruit minority students with the goal of graduating minority students.

The office hours are Monday-Thursday, 9 a.m.-10 p.m.; Friday 9 a.m.-6 p.m. For further information, contact Casey Gonzales or Fred Henry at 817-272-2099 or 817-272-2128.

The **Minority Mentor Project** matches freshman and sophomore students with U.T. Arlington faculty and staff to facilitate successful graduation rates. Freshmen or sophomores with fewer than 60 hours should contact the Office of Multicultural Services to participate.

## Disabled Student Services

Lower Level, University Center • Box 19355 • 817-272-3364  
 TTY 817-272-1520 • [www.uta.edu/disability](http://www.uta.edu/disability)

In compliance with the *Americans with Disabilities Act*, the Office for Students with Disabilities (OSD) is charged with the responsibility of ensuring full inclusion of all disabled students in all programs and activities offered at U.T. Arlington. The Office for Students with Disabilities verifies all physical, emotional, ADD/ADHD and learning disabilities in order to specify the appropriate disability-specific accommodations and/or adaptations that will assist all students registered in OSD in successfully completing their academic objectives. All U.T. Arlington students with disabilities requiring accommodations should contact OSD at 817-272-3364 (voice) or 817-272-1520 (TTY) or visit the office on the Lower Level of the E.H. Hereford University Center. Any academic accommodations must originate with the Office for Students with Disabilities. For more information regarding services or documentation requirements, please visit [www.uta.edu/disability](http://www.uta.edu/disability).

## Department of Campus Recreation

212 Activities Building • Box 19268 • 817-272-3277  
[www.uta.edu/campusrec](http://www.uta.edu/campusrec)

The Department of Campus Recreation provides a diverse offering of recreational and leisure experiences for students. More than 80 activities in competitive and recreational areas—team, individual and co-recreational—are scheduled throughout the year. Campus Recreation is located in Room 212 of the Activities Building; the phone number is 817-272-3277. Visit the Web site at [www.uta.edu/campusrec](http://www.uta.edu/campusrec) for more information on any of the programs listed.

The Department of Campus Recreation is comprised of five areas:

- Students are welcome to drop by the Activities Building for **Informal Recreation** and create their own fun. They may choose from a variety of activities such as, racquetball, basketball, volleyball, badminton, table tennis and indoor track. The Fitness Center cardiovascular machines, locker/shower facilities and smoothie bar/lounge are also available. Students are able to access the Activities Building free with a valid Mav Express card.
- **Intramural Sports** provides opportunities for participation in recreational and competitive activities. Divisions for men, women, and co-recreational teams are offered in team activities and in many individual/dual sports. Activities include flag football, bowling, soccer, golf, table tennis, billiards and many more.

- **QUEST University Wellness** is designed to enhance personal wellness. Various programs are offered (some for a nominal fee) through QUEST, including group exercise classes, fitness testing, personal training, massage therapy, and nutrition assessments.
- The **Sport Clubs** program serves individual interests in different sports. Some clubs represent U.T. Arlington in intercollegiate competition and/or conduct activities such as practice and instruction. Membership guidelines vary. Some of the current clubs include men's and women's soccer, men's and women's volleyball, cycling, martial arts, lacrosse, roller hockey, pool team and adventure team.
- U.T. Arlington has an indoor pool and an outdoor pool located in the Physical Education Building. A valid Mav Express card must be presented to enter either pool. Swim time is limited and hours vary each semester.

## Bursar Services

Rm. 130 Davis Hall  
Box 19649 • 817-272-2172

- Payment of debts to the University
- Student account billing questions
- Enrollment loan applications
- Check cashing services
- Allan Saxe Loan Administration (\$50 maximum, 30-day repayment, \$.25 service charge)

Any form of payment (check, electronic bank draft/ACH transfer, or credit card) that is returned unpaid may result in enrollment withdrawal and the following additional penalties: (1) a charge of \$25 for each returned item, (2) enrollment withdrawal with financial responsibility, (3) a bar against readmission of the student, (4) withholding of the student's grades, official transcript, and diploma, (5) loss of check writing privileges, (6) all other penalties and actions authorized by law.

**Check Cashing:** A current University identification card and a driver's license are required to cash a personal check. A student may cash a personal check for an amount not to exceed \$25. A \$.25 Check Cashing Charge will apply.

## Student Financial Aid

252 Davis Hall • Box 19199 • 817-272-3561  
[www2.uta.edu/fao](http://www2.uta.edu/fao)

The following summaries are for informational purposes only. Current information on each program is available from the Financial Aid Office and by accessing the Financial Aid Web site.

Students subject to selective service registration will be required to file a statement that the student has registered or is exempt from selective service registration to be eligible to apply for state or federal financial aid.

### Assistance Based on Need

Students wishing to participate in any of the following financial aid programs should complete a Free Application for Federal Student Aid (FAFSA) as early as possible prior to their actual enrollment at the University. The funding process takes six to eight weeks for completion. Financial aid in these categories is generally limited to U.S. citizens or

those in this country on other than temporary visa status. Funding for graduate courses is only available to students admitted to the Graduate School as "Regular" students. "Special" and "Transient" students are not eligible for these programs.

### Federal Perkins Loan and Federal Stafford Loan

These are the primary sources of long-term loans available at U.T. Arlington. Both programs include deferred repayment provisions that permit students to repay the loan after termination of at least half-time studies at the University. For those students demonstrating financial need, interest will not accrue on the loans while the borrowers are enrolled on at least a half-time basis. Information regarding loan amounts and terms can be obtained from the Financial Aid Office.

### Federal Work-Study Program

A student who needs a job to help pay for college expenses may be eligible for employment through the Federal Work-Study Program. Eligibility is based on financial need as determined by the FAFSA. Most participants are employed in positions with various University departments, but limited off-campus jobs with certain approved agencies are also available.

### Financial Counseling

The Financial Aid Office provides financial or budgetary counseling for any and all students regardless of whether they qualify for other types of financial assistance.

### Out-of-State Student Assistance

Several states offer aid to their students attending schools in other states. Amounts and requirements for this assistance vary greatly. Further information can be obtained from the home-state aid agency.

### Veterans' Assistance

Contact the Registrar's Office for information concerning eligibility for and payment of VA benefits and other matters for veterans attending or planning to attend U.T. Arlington.

## Scholarships

252 Davis Hall • Box 19199 • 817-272-2197  
[www2.uta.edu/fao/scholarships](http://www2.uta.edu/fao/scholarships)

The University of Texas at Arlington provides a variety of scholarship programs for students who have demonstrated exceptional academic achievement. U.T. Arlington also offers a number of endowed scholarships that are administered by a school, department or program. Graduate scholarships are awarded on the basis of scholastic excellence and adequate preparation for graduate study in the student's chosen field, as shown by the student's academic record. Scholarship eligibility criteria include admission into a degree program, enrollment in coursework leading to the degree, reasonable progress in the degree program, good academic standing, GPA, and in some cases, test scores, references and personal statements. There are additional specific qualifications for scholarships in various areas of study. Students are encouraged to contact their school dean or department/program office to obtain information about eligibility criteria and scholarships awarded in the student's area of study.

In addition to the specific qualifications required for various competitive scholarships awarded by the University, the committee responsible for selection of a given scholarship may consider such



factors as leadership, community involvement and financial need. State law and the *Rules and Regulations* of the Board of Regents of The University of Texas System require that any scholarship and/or fellowship be approved by the appropriate scholarship, loans and awards committee (graduate or undergraduate). For graduate students, the Dean of Graduate Studies serves as the committee chair.

Scholarship funds have been contributed by individual donors, U.T. Arlington alumni, corporations, government agencies and other entities to recognize and reward academic excellence.

## Assistantships

Research and teaching assistantships available in most departments can be held only by students admitted unconditionally or on probation to Graduate School. Students admitted provisionally or students who are on academic probation are not eligible for assistantships. Prospective graduate students should contact the appropriate department chairperson for further information. To be continued on a research or teaching assistantship, a student must be in good standing and have performed assigned duties satisfactorily in the preceding semesters as determined by the respective department. Consult the catalog section on General Graduate School Regulations and Information for regulations regarding registration and responsibility of graduate assistants.

A student whose native language is not English must submit a score of 45 or higher on the Test of Spoken English (TSE) before being appointed to an assistantship. An applicant who is a non-native speaker of English and who wishes to be considered for an assistantship should take the TSE before arriving in the United States and have the score sent to The University of Texas at Arlington. Score reports submitted directly by the student or those marked "student copy" or "applicant's copy" are not considered official and will not be accepted. The TSE is administered at TOEFL test centers around the world. See the "Application Documentation Requirements: Required Official Transcripts, Marksheets, Diplomas and Standardized Tests" section of this catalog for further information.

The U.T. Arlington Spoken English Assessment (SEA) is offered on the U.T. Arlington campus at various times during the year. A satisfactory score on this examination may be used for the TSE requirement for assistantships. The SEA may be taken in cases when the student has come to The University of Texas at Arlington without having taken the TSE and subsequently wishes to be considered for a graduate assistantship. Cost and time necessary for scoring the SEA examination are comparable to those for the TSE. For more information on the SEA, access the Assessment Services Office Web site at [www.uta.edu/assessment](http://www.uta.edu/assessment).

## Student Conduct and Discipline

The University of Texas at Arlington reserves the right to impose disciplinary penalties, including permanent expulsion, against a student for disciplinary reasons. Information about the rules of conduct and due process procedures is published in Part One, Chapter VI, Sec. 3 of the *Rules and Regulations* of the Board of Regents of The University of Texas System. The Regents' *Rules and Regulations* may be accessed at [www.utsystem.edu/bor/rules](http://www.utsystem.edu/bor/rules) or [www.uta.edu/studentaffairs/dos](http://www.uta.edu/studentaffairs/dos). This information is also published in the U.T. Arlington *Handbook of Operating Procedures*, copies of which are available in the offices of the Dean of Graduate Studies and Dean of Students.

## Hazing

Hazing in educational institutions is prohibited by both state law (Sections 51.936 and 37.151 et seq., *Texas Education Code*) and by the Regents' *Rules and Regulations* (Part One, Chapter VI, Section 3.28). Individuals or organizations engaging in hazing could be subject to fines and charged with criminal offenses. Additionally, the law does not affect or in any way restrict the right of U.T. Arlington to enforce its own rules against hazing.

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 firsthand information that a hazing incident is planned or has occurred in writing to the Vice President for Student Affairs or 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.

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 Office of Student Affairs and immunizes that person from participation in any judicial proceeding resulting from that report. The penalty for failure to report is a fine of up to \$1,000, up to 180 days in jail, or both. Penalties for other hazing offenses vary according to the severity of the injury that results and range from \$500 to \$10,000 in fines and up to two years confinement.

The law defines hazing as an 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 that 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:

- Any type of physical brutality, such as whipping, beating, striking, branding, electronic shocking, placing of a harmful substance on the body or similar activity;
- 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 of harm or that adversely affects the mental or physical health or safety of the student;
- Any activity involving consumption of food, liquid, alcoholic beverage, liquor, drug or other substance that subjects the student to an unreasonable risk of harm or that adversely affects the mental or physical health of the student;
- Any activity that intimidates or threatens the student with ostracism, that subjects the student to extreme mental stress, shame or humiliation, 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 subdivision; and
- Any activity that induces, causes, or requires the student to perform a duty or task that involves a violation of the Penal Code. The fact that a person consented to or acquiesced in a hazing activity is not a defense to prosecution.

## Campus Solicitations

"Solicitation," as defined in Part One, Chapter VI, Section 6.6 of the *Rules and Regulations* of the Board of Regents of The University of Texas System, means the sale, lease, rental or offer for sale, lease, rental of any property, product, merchandise, publication or service, whether for immediate or future delivery; an oral statement or the distribution or display of printed material, merchandise or products that is designed to encourage the purchase, use or rental of any property, product, merchandise, publication or service; the receipt of or request for any gift or contribution; or the request to support or oppose or to vote for or against a candidate, issue or proposition appearing on the ballot at any election held pursuant to state or federal law or local ordinances. All solicitations on the U.T. Arlington campus must conform to the Regents' *Rules and Regulations*, copies of which are available in the offices of the president, vice presidents, academic deans, numerous other administrative offices and the Central Library. The Regents' *Rules and Regulations* also may be accessed at the following Web site: [www.utsystem.edu/bor/rules](http://www.utsystem.edu/bor/rules).

## Use of Campus Facilities

The property, buildings or facilities owned or controlled by The University of Texas at Arlington are not open for assembly, speech or other activities as are the public streets, sidewalks and parks. No person, organization, group, association or corporation may use property, buildings or facilities owned or controlled by U.T. Arlington for any purpose other than in the course of the regular programs or activities related to the University's role and mission unless authorized by and conducted in compliance with the *Rules and Regulations* of the Board of Regents of The University of Texas System, approved rules and regulations of U.T. Arlington, and applicable federal, state and local laws and regulations.

## Vehicle Emissions Inspections

Vehicles parking or driving on campus must comply with vehicle emissions inspections standards pursuant to Subchapter F, Chapter 548 of the *Texas Transportation Code* and vehicle registration laws, and must display appropriate inspection stickers.

Non-resident students, those who reside in another state and whose vehicle is registered in another state, while attending this University, will be required by the State of Texas to submit their vehicle for emissions inspection each year prior to receiving a parking permit.

Vehicles not in compliance will be ticketed.

## Student Travel Policy

Before any student organization travels, it is beneficial to come to the Office of Student Governance and Organizations to receive information about liability and to consider using release forms that are available.

However, if the trip is funded by the University (including Program Assistance Funds), is more than 25 miles from the University, and the vehicle is owned or leased by the University, or if attendance is required by a student organization, then the organization must submit

the Student/Group Travel Form and the University Request for Travel Authorization at least 10 days prior to the date of travel. All forms and additional information is available in the Office of Student Governance and Organizations. For additional information, see the U.T. Arlington *Handbook of Operating Procedures*, Part II, Subchapter 6-600.

## University Authorized Absences

The Office of the Vice President for Student Affairs provides lists of students who have absences authorized by the University (e.g., participation in athletic events or scholastic activities that are officially-sponsored University functions—these are primarily activities that are funded by the University). The student must contact the instructor one week in advance of the excused absence and arrange with the instructor to make up missed work or missed examinations. Instructors will provide those students an opportunity to make up the work or otherwise adjust the grading to ensure that the student is not penalized for the absence. Failure to notify the instructor or failure to comply with the arrangements to make up the work will void the excused absence.

## Student Right-to-Know and Campus Security Act Campus Security

In compliance with the federal Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act, formerly the Student Right-to-Know and Campus Security Act (P.L. 101-542, as amended), The University of Texas at Arlington publishes specified campus crime statistics and campus security policies through the Office of the Chief of the University Police.

Campus security policies include:

- Procedures for reporting criminal actions or other emergencies occurring on campus.
- Policies concerning security of and access to campus facilities, including campus residences; campus law enforcement authority and responsibilities.
- A description of programs designed to inform students and employees about the prevention of crimes, and campus security procedures.
- The policy of monitoring and recording of students' criminal activity occurring at off-campus locations of student organizations officially recognized by the institution.
- The policy regarding the possession, use and sale of alcoholic beverages and illegal drugs, and enforcement of federal and state drug and drinking laws.
- A description of drug or alcohol-abuse education programs.
- Sexual assault programs to prevent sex offenses, and procedures to follow when a sex offense occurs.

Crime statistics may be accessed on the University Police Web site at [www.uta.edu/police/crimestats.htm](http://www.uta.edu/police/crimestats.htm).

## Graduation Rates

In 2002-2003, the graduation rate was 36.6 percent for students who entered The University of Texas at Arlington in 1997 on a full-time basis as first-time, degree-seeking freshmen.

# The School of Architecture

Dean: Donald Gatzke, M.Arch.

203 Architecture Bldg. • Box 19108 • 817-272-2801 • [www.uta.edu/architecture](http://www.uta.edu/architecture)

## Mission and Philosophy

The mission of the graduate Architecture and Landscape Architecture programs is to prepare students for sustained contributions and leadership in the design professions. This mission occurs in partnership with the larger University. Together the programs and the University share the aim of educating broadly to the demands of a complex society and, more specifically, to the demands of sophisticated and changing professions.

## History and Overview

Architecture was first taught at what is now The University of Texas at Arlington in the early 1940s as a two-year, non-degree program within the School of Engineering. In 1968, with the support of professional architects in the Dallas/Fort Worth area, architecture became a department of the College of Liberal Arts, granting the degree of Bachelor of Science in Architecture. The department prospered, and by 1973 a decision was made to establish a separate school of architecture based on a four-year undergraduate program with a two-year master of architecture program as the professional degree.

By 1978, the School of Architecture and Environmental Design (as it was named in 1974) had an enrollment of more than 1,000 students with 31 full-time faculty. Four programs were included at that time: architecture, interior design, landscape architecture, and city and regional planning. Subsequently, planning moved to the Institute of Urban Studies. In 1989, the school was renamed the School of Architecture.

Architecture and landscape architecture are seen as both the means and the goal of the education we offer. As *means*, our fields provide a ready path to the larger domain of ideas, history and the human condition. Architecture was seen, after all, as one of the essential liberal arts during the Renaissance. As *goals*, our fields call upon us to learn specific professional knowledge and skills—they focus our attitudes and abilities to produce tangible, concrete things. This demand that we alternately widen and narrow our vision is one of the great strengths of the fields and is one source of their effectiveness as courses of study.

Within a broad curriculum, design as a discipline and a process is emphasized. Students are encouraged to give rich visual and material substance to both theoretical and pragmatic ideas. The context for design at U.T. Arlington centers on the contemporary urban condition, an approach appropriate for a school at the heart of a diverse, expanding and internationally oriented region like Dallas/Fort Worth.

The school's location at the center of the Dallas/Fort Worth area is especially important for students of architecture and landscape architecture. Almost every cultural, social and professional opportunity is nearby. The urban setting serves as a laboratory to observe the issues that confront current design and to test the proposals put forward.

Built work by many of the foremost contemporary architects and landscape architects may be experienced and studied firsthand. Kahn, Pei, Wright, Johnson, Meier, Legoretta, Rudolph, Giurgola, Barnes, Predock, Holl, KPF, Kiley and Walker all have major projects here.

The School of Architecture offers large and up-to-date facilities for research and study. Constructed in 1984, the Architecture Building houses studios, classrooms and offices in addition to a CAD laboratory, a photography studio, a materials shop, a slide library and the Architecture and Fine Arts Library, with 40,000 books and 190 periodicals. The U.T. Arlington Libraries contains more than 1 million volumes, and students have access to The University of Texas System Library, which house 12 million volumes.

The School of Architecture has an enrollment of approximately 1,000 students, of whom about 160 are graduate students. They come from all parts of the United States and the world; more than 20 percent are international students. About one-third of the graduate students are women.

In terms of recognition of quality, 134 School of Architecture students have received awards in 63 major design or research competitions over the last 10 years, most at the national or international level. This unsurpassed record of competitive accomplishment reflects the education focus of the school. Developed student abilities, along with a tradition of integrating work and academic experience, give U.T. Arlington graduates ready entry and advancement in the professional world.

## Accreditation

The school offers the Master of Architecture and the Master of Landscape Architecture as first professional degrees in the respective programs. The former is accredited by the National Architecture Accrediting Board and the latter by the Landscape Architecture Accrediting Board. The M.Arch. and the M.L.A. taken as second, or post-professional degrees, do not carry professional accreditation.

## Scholastic Activity and Research Interests of the Faculty

The faculty—full-time, adjunct and part-time—are involved in their areas of academic and professional interest. This takes many forms: built projects, design studies and competitions, scholarly writing and applied research. This work enriches the teaching mission and provides contributions to the larger community. For a detailed listing of faculty activity, see the *Faculty Catalog*, available from the School of Architecture.

## Special Programs and Opportunities

Visiting faculty members are an integral part of the graduate program at U.T. Arlington. Noted teachers from other schools in the United States and abroad as well as distinguished practicing designers offer advanced studios and courses each year. Thus, students have access to both a core of permanent faculty members and to a changing spectrum of approaches and values. In addition to on-campus coursework, graduate students may study and travel abroad as an integrated part of the curriculum. The school maintains semester-long, full-credit student exchanges during the academic year with architecture schools at the Universities of Barcelona (Spain), Lund (Sweden) and Innsbruck (Austria). During the summer, there is a full-credit, five-week travel program to Rome, Florence and Verona, Italy.

## Programs

Master of Architecture

Master of Landscape Architecture

## Objective

The purpose of the Master of Architecture program is to educate for ultimate leadership positions within the architecture profession.

Design is emphasized as central to the discipline of design deeply informed by history, theory, technology, and the broader cultural setting. Design studios, lecture courses, seminars, and workshops develop the critical mind as well as the visual sensibility.

Architecture and its practice exist within the social fabric. Thus discourse and communication are a vital part of the educational process. Through case studies in studios and courses, students learn to present ideas, and to use and give commentary. Visiting faculty—leading practitioners and teachers from other schools—provide a rich connection to the world of building and to a variety of views. In addition, international student exchange programs, study-travel courses, and numerous internship opportunities in the Dallas-Fort Worth area connect the learning of architecture with the wider world.

In the United States, most state registration boards require a degree from an accredited degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degrees: the Bachelor of Architecture and the Master of Architecture. A program may be granted a five-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards.

Master's degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree, which, when earned sequentially, comprise an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree. The University of Texas at Arlington does not offer the Bachelor of Architecture degree.

The professional program leading to the Master of Architecture degree consists of a sequence of coordinated core courses that introduce and develop architectural knowledge; this is followed by a flexible array of more advanced and speculative course options. The preparation each student brings determines where, in this progression from introductory to advanced work, the program is entered. Path A is for those with a baccalaureate degree but no specific background in architecture; this sequence normally takes 3.5 years to the M.Arch. Path B is for those with a four-year undergraduate baccalaureate degree with a major in architecture; this sequence assumes satisfactory core studies and consists of about two years of more advanced professional studies. Path C is for those who already hold an accredited professional degree in architecture and who wish for a second professional degree; at least one year of advanced work is required.

## Admissions Requirements

### Unconditional Admission

**Path A:** For unconditional admission to the Path A program, the candidate must meet the following requirements:

- B.S. or B.A. Degree - Hold a 4-year B.S. or B.A. degree from an accredited program.
- GPA of 3.0 - Have a GPA of 3.0 as calculated by the Graduate School.
- GRE score of 1000 - Have a minimum total score of 500 in the verbal and 500 in the quantitative portions of the Graduate Record Exam (GRE).
- 3 Letters of recommendation

## Program in Architecture

[www.uta.edu/architecture](http://www.uta.edu/architecture)

### Area of Study and Degree

Architecture  
M.Arch.

### Master's Degree Plans

Thesis, Thesis Substitute (Design Thesis)  
and Non-Thesis (Advanced Studio)

### Dean, School of Architecture

Donald Gatzke  
203 Architecture, 817-272-2801

### Graduate Advisor

David Jones  
203 EB Architecture, 817-272-2801

### Graduate Faculty

Professors  
Baum, Duncan, Ferrier,  
Hamilton, Henry, Kuhner,  
McDermott, Mehta, Price

### Associate Professors

Boswell, Gintole, Guy, Maruszczak,  
Pinno, C. Wright, Yardley

### Dean Emeritus

G. Wright

Submit three letters of recommendation from sources who are familiar with the applicant's academic record, preferably former professors. (For applicants who have been out of school for an extended period, letters of recommendation may be from professional sources if academic ones are no longer available).

- 200 Word Essay  
Submit a short 200-word personal statement providing evidence of professional or academic goals consistent with the Architecture Program.
- TOEFL Score of 550  
For applicants whose native language is not English, a minimum score of 550 on the Test of English as a Foreign Language (TOEFL), or the equivalent score on the computer based test. For otherwise highly qualified candidates, this requirement may be eased.
- Portfolio Submission (Optional)  
Submission of a design portfolio is not required. If a candidate does have a portfolio of creative work showing freehand drawings or sketches, painting, graphic design, architectural or furniture design, he/she is encouraged to submit it.

**Path B:** For unconditional admission to the Path B program, the candidate must meet the above requirements, and in addition must:

- Portfolio Submission (required)  
Submit a portfolio of design work and/or professional involvement, which shows evidence of design capability on a level expected in the graduate program as determined by the Graduate Architecture Admissions Committee. (Design work produced in an office as an employee carries less weight because of the difficulty in determining the applicant's exact contribution to the work shown). The best indication of probable success in the program is the quality of work demonstrated in the portfolio.
- U.T. Arlington Undergraduate Architecture Students  
Candidates who have completed their undergraduate architecture at UT Arlington, who have a 3.0 GPA (overall, in their major, in all 3000 and 4000 level courses and in their last 60 hours) and maintain a 3.175 GPA in all 6 design studios, qualify for automatic admission pending a *timely* submission of the application form and fee, official transcripts, and three favorable letters of recommendation from the UT Arlington architecture faculty. Such candidates are exempt from taking the GRE and submitting a portfolio.

**Path C:** For unconditional admission to the Path C program, the candidate must meet the requirements of the Path A and Path B programs (except the requirement of a B.A. or B.S. degree) and must:

- Professional Architecture Degree  
Have a professional architecture degree (B.Arch. or M.Arch. or the international equivalent) from an accredited architecture program.

### Probationary Admission

**Path A:** Candidates who do not meet the criteria for unconditional admission to Path A, will be considered for probationary admission in which they will be required to maintain a grade of B or better in the first 12 credit hours of courses in the program. To be considered for probationary acceptance, the candidate must perform well on four of the following six criteria:

- Undergraduate performance in relevant courses
- Work experience
- GPA

- GRE
- Portfolio review (optional)
- Letters of recommendation

**Path B:** Candidates who do not meet the criteria for unconditional admission to Path B may be considered for probationary admission in which they will be required to maintain a grade of B or better in the first 12 credit hours of courses in the program. And/or they may also be required to take one or more Path A and/or fourth year design studio as determined by the graduate advisor on review of their portfolio before continuing with the Path B design studio sequence.

To be considered for probationary acceptance, the candidate must perform well on three of the following five criteria:

- Undergraduate performance in relevant courses
- GPA
- GRE
- Letters of recommendation
- Portfolio review

**Path C:** Candidates who do not meet the criteria for unconditional admission to Path C, may be considered for probationary admission in which they will be required to maintain a grade of B or better in the first 12 credit hours of courses in the program. To be considered for probationary acceptance, the candidate must perform well on three of the following five criteria:

- Performance in relevant courses in a program leading to the B.Arch or M.Arch degree.
- GPA
- GRE
- Letters of recommendation
- Portfolio review

Note: Applicants whose native language is not English who do not meet the program's minimum TOEFL score, may be asked to complete extramural training in English, as approved by the program and the Graduate School.

### Provisional Admission

An applicant unable to supply all required documentation prior to the submission deadline but who otherwise appears to meet admission requirements may be granted provisional admission. All missing documentation must be received before the end of the first semester of study.

### Deferred Admission

A deferred admission may be granted when a file is incomplete or when a denied decision is not appropriate.

### Denial of Admission

Candidates who do not satisfy the requirements for probationary admission will not be admitted.

### Graduate Teaching Assistant

To be considered for a Graduate Teaching Assistant position, the candidate must be admitted without provisional conditions. Candidates whose native language is not English must submit an acceptable score on the Test of Spoken English (TSE-A) before arriving in the United States. GTA positions in architecture are limited and are very competitive.

## Fellowships

To be considered for a Dean's Fellowship, the candidate must have a favorable review in most of the evaluation criteria. Candidates must be new students coming to UTA, must have a GPA of 3.0 in their last 60 undergraduate credit hours and any graduate credit hours, and must be enrolled in a minimum of 6 hours in both long semesters to retain their fellowships. Fellowships in architecture are limited and very competitive.

Prospective students are strongly encouraged to contact the Graduate Advisor and discuss their options, the admission process, and how the M.Arch program may fit in their professional plans. Students are also invited to visit the School, sit in on classes, and meet faculty and students at the School of Architecture.

## Degree Requirements

### Professional Degree Program: Path A (3.5 years)

For applicants holding a baccalaureate (B.A., B.S.) degree in a subject outside architecture, such as liberal arts, sciences, business, or another profession.

A minimum of 104 credit hours in architectural design, theory, and practice is required of Path A candidates for the professional degree in architecture (M.Arch). Due to the rigor of the program (not unlike any other professional school—law or medicine), students entering this program are advised to discontinue outside employment.

Advancement in Professional Degree Program Path A is predicated upon successful and timely completion of required coursework as well as an annual review of the student's portfolio of design work by the Directors Group of the Architecture Program.

In addition to completing an introductory curriculum beginning in the summer of the first semester of enrollment, students must also complete the Path B core curriculum of 39 credit hours. The core curriculum of this course of study is ARCH 5325, 5326, 5329, 5331, 5333, and 24 hours of advanced studio. Students approved by the Directors Group to substitute a design thesis for the last semester of the required studio sequence must also take ARCH 5363 prior to enrollment in ARCH 5693.

Electives must include at least one course from each of the following categories of courses offered by the school: (a) history and theory (b) technology and practice, and (c) allied disciplines (landscape architecture, urban design, housing, and interior design).

### Suggested Course Sequence: Path A

#### First Year

##### Summer Semester

5591 Design Studio I  
5301 Principles of Architecture  
5342 Architectural Graphics I

##### Spring Semester

5593 Design Studio III  
5324 Architectural Structures I  
5304 History of Architecture II  
Elective 3 hours

#### Second Year

##### Summer Semester

5594 Design Studio IV  
5329 Computers and Design  
(or approved alternative)

##### Fall Semester

5592 Design Studio II  
5323 Construction I  
5343 Architectural Graphics II  
5303 History of Architecture I

##### Fall Semester

Advanced Studio 6 hours  
5327 Architectural Structures II  
5325 Environmental Controls I  
Elective 3 hours

#### Spring Semester

Advanced Studio 6 hours  
5328 Architectural Structures III  
5326 Environmental Controls II  
Elective 3 hours

#### Third Year

##### Fall Semester

Advanced Studio 6 hours  
5331 Professional Practice  
5363 Design Research  
(for design thesis option)  
5333 Construction II  
Elective 3 hours  
(Thesis or advanced studio options)

##### Spring Semester

Advanced Studio 6 hours  
*or*  
5693 Design Thesis  
*or*  
5698 Thesis  
Electives 6 hours

### Professional Degree Program: Path B (2 years)

For applicants holding a baccalaureate degree with a major in architecture. Placement in the graduate curriculum may be adjusted on the basis of previous academic and professional work.

A minimum of 54 credit hours is required for the thesis option or 57 for the design thesis and advanced studio options.

The core curriculum for this course of study is ARCH 5325, 5326, 5329, 5331, 5333, 18 hours of advanced studio, and 5693 or 5698 or advanced studio. Students in design thesis option must take ARCH 5363 prior to enrollment in ARCH 5693.

Electives must include at least one course from each of the following categories of courses offered by the School of Architecture: (a) history and theory (b) technology and practice and (c) allied disciplines (landscape architecture, urban design, housing and interior design).

### Suggested Course Sequence: Path B

#### First Year

##### Fall Semester

Advanced Studio 6 hours  
5325 Environmental Controls I  
5333 Construction II

Elective: 3 hours

##### Spring Semester

Advanced Studio 6 hours  
5326 Environmental Controls II  
5329 Computers and Design  
(or approved alternative)

Elective: 3 hours

#### Second Year

##### Fall Semester

Advanced Studio 6 hours  
5331 Professional Practice  
5363 Design Research  
(for design thesis option)  
Elective: 3 hours  
6 hours (advanced studio option)

##### Spring Semester

5698 Thesis  
*or*  
5693 Design Thesis  
*or*  
Advanced Studio 6 hours  
Electives: 6 hours

### Post-Professional Degree Program: Path C (1 year)

For applicants holding a previous professional degree in Architecture (B.Arch.) from an accredited program. The M.Arch, as a second rather than a first professional degree, does not receive NAAB accreditation.

Thirty credit hours are required of students in Path C with thesis while 33 hours will be required of students with design thesis or advanced studio options.

A minimum of 18 hours is required in architectural program courses including six hours of history/theory as well as thesis, design thesis, or advanced studio. Students are also required to take an advanced studio, which may be waived by student request if design proficiency or equivalent experience has been demonstrated. The remainder of the

work will be arranged with and approved by the Graduate Advisor to suit the interests of the student. Courses of study provide for an area of specialization or for advanced general studies.

**Suggested Course Sequence: Path C**

<b>Fall Semester</b>	<b>Spring Semester</b>
History/Theory: 3 hours	History/Theory: 3 hours
Advanced Studio: 6 hours	Advanced Studio 6 hours
5363 Design Research (for design thesis option)	or 5693 Design Thesis
Elective: 3 hours	or 5698 Thesis
	Electives: 9 hours (for design thesis or Advanced studio options)
	6 hours (for thesis option)

The School of Architecture offers international study programs in Rome, Barcelona, Innsbruck, and Lund. The Rome Program, conducted for five weeks each summer by U.T. Arlington faculty, is open to upper division and graduate students and may be used to satisfy history and elective requirements. The Barcelona, Innsbruck and Lund programs are semester-long exchange programs with universities in these cities, with the normal expectation of both studio and elective credit.

**M.C.R.P. and M.Arch.  
Dual Degree Program**

Students in this dual program may earn both the Master of City and Regional Planning and the Master of Architecture degrees in a curriculum of 87 semester credit hours. Applicants must meet the admission requirements of both the M.C.R.P. and the M.Arch. programs. City and Regional Planning students wishing to earn the M.Arch degree will be required to take Path A in the Architecture Program unless they have earned an undergraduate degree in architecture which will allow CIRP applicants to take Path B. Programs of study will follow both master's programs, with all of the 15 credit hours of electives in the M.Arch program to be taken in the MCRP program. In addition to the 36 credit hours of architectural core courses, the remainder of coursework will be in the City and Regional Planning program with a required thesis proposal and programs of work to be jointly approved by the City and Regional Planning Program and the Architecture Program. A thesis supervisor should be selected from CIRP or the School of Architecture, and committee members should be selected from both faculties.

Course selection and programs of study should be designed with the assistance of the Graduate Advisors in both programs. Only in special instances may students select the thesis substitute plan of the MCRP program. The successful candidate will be awarded both degrees rather than one joint degree.

The grade of R (research in progress) is a permanent grade; completing course requirements in a later semester cannot change it. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. Enrolling again in the course in

which an X was earned cannot change a grade of X. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

**Architecture (ARCH)**

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5301. PRINCIPLES OF ARCHITECTURE (3-0).** A survey study of the interrelationships between society, culture and architecture. Concurrent enrollment in ARCH 5591 and 5342 required.

**5302. LYRICISM IN ARCHITECTURE (3-0).** Concepts and models of architecture that express a philosophy concerning feelings, intuition, and creative spontaneity, emphasizing flowing rhythms and nature-inspired forms.

**5303. HISTORY OF ARCHITECTURE I (3-0).** History of architecture from pre-history through the Middle Ages. Prerequisite: permission of instructor.

**5304. HISTORY OF ARCHITECTURE II (3-0).** History of Architecture from the Renaissance to the present. Prerequisites: ARCH 5303 and permission of instructor.

**5305. THE CITY OF ROME (3-0).** History, topography, and monuments of Rome and its environs from its legendary founding in 753 B.C. until the 20th Century, with special emphasis on imperial and papal Rome.

**5306. URBAN DESIGN (3-0).** Urban design theory, method, and implementation using contemporary and historic examples.

**5307. THEORY OF CITY PLANNING (3-0).** The physical aspects of city planning as it relates to the social, economic, and political aspects of planning as a discipline.

**5308. HISTORY OF URBAN FORM (3-0).** History of urban form, considered as the product of political, economic and social forces. Prerequisite: permission of instructor.

**5309. THE CITY OF LONDON (3-0).** History, topography, and monuments of Greater London from before the Roman colonization until the 20th Century, emphasizing London's growth into a world capital since the Great Fire of 1666.

**5310. AMERICAN ARCHITECTURE TO 1917 (3-0).** Detailed consideration of the architecture of the United States from the 17th Century until World War I, with special attention to the great and little masters of the field. Prerequisites: ARCH 2303 and 2304.

**5311. ARCHITECTURAL THEORY (3-0).** A review and analysis of the concepts, philosophy, ideology, and models that promulgated 20th Century architectural design. May be repeated for credit as topics change. Prerequisite: permission of instructor.

**5312. ARCHITECTURE OF TEXAS (3-0).** The architecture of Texas broadly considered, including the vernacular built environment and the urban context, from the 18th century Spanish Colonial period until the 1960s, with reference to regional tendencies and national/international modes of expression.

**5313. HISTORIC RESTORATION AND ADAPTIVE RE-USE (3-0).** Investigation of methods and procedures used in restoration of buildings,



including building diagnostics, re-fabrication of architectural details, cleaning and waterproofing, structural investigation and reinforcement; examination of office procedures and practice, production of measured drawings, photography, code investigation, working drawing techniques and problems of aesthetic integrity/design retrofit.

**5314. HISTORIC PRESERVATION (3-0).** Concepts of historic preservation as expressed in legislation, institutions and actual projects. Lectures and case studies designed to familiarize the student with methods of architectural and bibliographic research, preservation legislation, historic certification procedures, economic strategies, and current problems in adaptive use of historic landmarks.

**5315. TOPICS IN ARCHITECTURAL HISTORY (3-0).** Courses to explore and present selected topics in architecture and related fields of the Ancient Mediterranean, the Classical World, the Middle Ages, the 19th Century, and the Non-Western Traditions. May be repeated for credit as topics change. Prerequisite: permission of instructor.

**5316. MODERN ARCHITECTURE I: 1890 TO 1945 (3-0).** Origins and development of Modern Architecture in Europe from 1890 to World War II, and its further evolution in Europe and America from 1918 to 1945. Prerequisites: ARCH 2303 and 2304.

**5317. MODERN ARCHITECTURE II: 1945 TO PRESENT (3-0).** Architectural developments in Europe, Asia, and America since World War II. Prerequisites: ARCH 2303 and 2304.

**5318. RENAISSANCE ARCHITECTURE (3-0).** Detailed consideration of Renaissance and Mannerist architecture in Europe of the 15th and 16th centuries. Prerequisite: ARCH 2304 or equivalent.

**5319. HOUSING DESIGN (3-0).** Evolution of housing from the end of the 19th Century to the present with particular emphasis on contemporary design methods, techniques and solutions.

**5320. BAROQUE ARCHITECTURE (3-0).** Detailed consideration of Baroque architecture in Europe from 1600 until about 1750. Prerequisite: ARCH 2304 or equivalent.

**5321. ADVANCED COMPUTER APPLICATIONS (3-0).** The study and application of specialized computer programs in environmental design. Prerequisites: ARCH 4329 or 5329 or the equivalent, and permission of the instructor.

**5323. CONSTRUCTION I (3-0).** Construction materials and structural concepts as used in buildings. Prerequisite: permission of instructor.

**5324. ARCHITECTURAL STRUCTURES I (3-0).** Statics, strength of materials and simple structural systems in buildings. Prerequisite: permission of instructor.

**5325. ENVIRONMENTAL CONTROL SYSTEMS (3-0).** Illumination, acoustics, climate controls, mechanical and electrical systems, and their significance in the total design.

**5326. ENVIRONMENTAL CONTROL SYSTEMS (3-0).** Continuation of ARCH 5325.

**5327. ARCHITECTURAL STRUCTURES II (3-0).** Continuation of ARCH 5324 with emphasis on structural theory and systems in wood and steel. Prerequisite: ARCH 5324.

**5328. ARCHITECTURAL STRUCTURES III (3-0).** Continuation of ARCH 5327 with emphasis on structural theory and systems in masonry and reinforced concrete. Prerequisite: ARCH 5327.

**5329. COMPUTERS AND DESIGN (3-0).** Computer aided design, drafting and graphic techniques as applied to architecture. Prerequisite: permission of the instructor.

**5330. COMPARATIVE STRUCTURES (3-0).** Comparative analysis and design of structural systems and construction techniques, including architectural and economic determinants. Prerequisite: ARCH 5328 or permission of the instructor.

**5331. PROFESSIONAL PRACTICE (3-0).** Survey of the administrative functions, and the ethical and legal responsibilities of the architect.

**5332. ENERGY USE AND CONSERVATION IN ARCHITECTURE (3-0).** Concepts of the efficient use and conservation of energy and their embodiment in the built environment. Prerequisite: permission of the instructor.

**5333. CONSTRUCTION II (3-0).** Advanced construction assemblies and methods, including the principles of cost control. Prerequisites: ARCH 5323 and 5328.

**5335. ADVANCED PROFESSIONAL PRACTICE II: MARKETING DESIGN SERVICES (3-0).** A study of the strategies and methods for marketing professional services. Presented as case studies of architecture, interior design, and landscape architecture firms.

**5336. ADVANCED PROFESSIONAL PRACTICE III: PROJECT MANAGEMENT OF LARGE BUILDINGS (3-0).** A study of how large buildings are realized through architectural offices, from preliminary design through construction.

**5337. SOILS AND FOUNDATIONS (3-0).** Soil classifications, field and laboratory identification, physical properties and load-bearing characteristics, retaining walls and foundations. Prerequisite: ARCH 5328 or permission of the instructor.

**5338. MASONRY STRUCTURES AND CONSTRUCTION (3-0).** Materials, construction, and structural aspects of loadbearing masonry. Masonry in non-loadbearing and veneer applications.

**5342. ARCHITECTURAL GRAPHICS I (2-4).** Architectural drawing, perception, projections, and three-dimensional representation. Concurrent enrollment in ARCH 5591 is required.

**5343. ARCHITECTURAL GRAPHICS II (2-4).** A continuation of ARCH 5342 with emphasis on more advanced techniques: composition, tone, shades and shadows, and color.

**5344. CONCEPTUAL DRAWING (3-0).** Seminar to explore aspects of conceptual drawing for the architect and the relationship of design ideas in the drawing process.

**5346. CONSTRUCTION DRAWINGS I (2-4). 3 hours credit.** The techniques of building construction, the communication of technical information, and the process of preparing contract drawings for construction.

**5348. PRINCIPLES OF ARCHITECTURAL PHOTOGRAPHY (2-4).** The use of photography as an investigative and presentation medium in architecture. Emphasis on composition in black and white technique.

**5349. ADVANCED ARCHITECTURAL PHOTOGRAPHY (2-4).** Advanced techniques in photography, including use of the view camera and lighting techniques, and their use in photographing architecture and architectural models.

**5350. VESSELS (3-0).** The design of objects for the post-Industrial Age, including vehicles, furniture, jewelry, household objects, and clothing.

**5351. WILDERNESS: A CONDITION OF MIND (3-0).** Changing conceptions of wilderness in Western thought, from ancestral prejudices to recent, revolutionary appreciation. Literary and visual documentation.

**5352. PAINTERS AS ARCHITECTS (3-0).** A study of artists' rendering of architectural forms and urban spaces in the pictorial arts. Examples of fictive architecture from several cultures are explored chronologically.

**5353. PERSPECTIVAL SPACE (2-1).** Issues concerning the aspects and potential of perspective space will be presented in a lecture and discussion format. Readings and the making of perspective drawings will be used to explore the medium of perspective vision for its cultural implications as well as depiction.

**5363. DESIGN RESEARCH (3-0).** Seminar directed toward the understanding of research methods and the programming of an independent design project, leading to the thesis substitute. Graded R.

**5370. ADVANCED DESIGN STUDIO (2-4).** Studio course in the generation and development of architectural ideas in formal and environmental contexts. May be repeated for credit. Two of these courses are equivalent to ARCH 5670.

**5591. DESIGN STUDIO I (3-6).** An intensive studio course in architectonic theory and operations. Emphasis on analytic, conceptual, and manipulation procedures.

**5592. DESIGN STUDIO II (3-6).** Continuation of ARCH 5591. Studio course emphasizing the interrelationship of formal/spatial ideas, use, and the building fabric. Prerequisite: ARCH 5591.

**5593. DESIGN STUDIO III (3-6).** Continuation of ARCH 5592. Studio course emphasizing the interrelationship of formal/spatial ideas, use, and the building fabric with special attention to the urban context. Prerequisite: ARCH 5592.

**5594. DESIGN STUDIO IV (3-6).** Continuation of ARCH 5593. Emphasis on complex building designs in urban environments. Off campus study may be substituted.

**5670. ADVANCED DESIGN STUDIO (3-9).** Studio course emphasizing the analysis and design of building aggregations within the urban context. May be repeated for credit.

**5671. ADVANCED DESIGN STUDIO (3-9).** Studio course in the generation and subsequent development of architectural ideas in buildings. May be repeated for credit.

**5693. DESIGN THESIS.** Individual study project conducted by a supervising committee, with program and statement of intent to be filed with the Graduate Advisor during the previous semester. Graded R. Prerequisite: ARCH 5363.

**5381, 5681. PRACTICUM (0-16).** Internship program including work done through an approved architect's office, designed to give practical experience leading to a broader knowledge of the profession. Placement in offices must be approved, and in some cases may also be arranged by the school. Students may enroll in 5381 for half-time employment or 5681 for full-time employment. Students enrolled in Practicum may also participate in the Intern Development Program of the American Institute of Architects. No more than six total credit hours in Practicum are allowed for degree. Graded P/F/R.

**5191, 5291, 5391. CONFERENCE COURSE.** Special subjects and issues as arranged with individual students and faculty members. May be repeated for credit. Graded P/F/R.

**5195-5695. TOPICS IN ARCHITECTURE.** Studio, lecture or seminar courses to explore and present special topics in architecture and environmental design. May be repeated for credit as topics change.

**5698. RESEARCH THESIS.** Independent research and presentation of findings under direction of a supervising committee. May be repeated, but only six hours may be counted toward degree. Graded P/F/R.

## Objective

The mission of the Program in Landscape Architecture is to educate for ultimate leadership in the landscape architecture profession. This mission requires fostering rigorous scholarly inquiry of the discipline, and the preparation of knowledgeable practitioners.

The Program in Landscape Architecture has the dual objectives of providing students with a core of design and technical skills in combination with experiences in pure and applied research. This duality prepares students for problem solving in the profession through design and research, and it is a program focus. The Program in Landscape Architecture also prepares students to enter practice in private, public, academic, and research organizations.

Student preparation is enhanced by specialized coursework taken inside and outside of landscape architecture and by the topic of one's thesis. Students are directed to select thesis committee members early-on and to select specialized courses which reinforce students' areas of primary interest in landscape architecture.

The Program in Landscape Architecture is fully accredited by the Landscape Architectural Accreditation Board of the American Society of Landscape Architects. Graduates from the program are qualified to sit for the Landscape Architecture Registration Exam which, when successfully passed, qualifies individuals to practice as landscape architects in the State of Texas.

## Admission Requirements

Applicants must meet the general requirements of the Graduate School. A personal interview with the Director, Graduate Advisor or members of the landscape architecture faculty is recommended. Three letters of recommendation are required, and it is suggested that at least two of the letters come from former educators or academic contact. Applicants also are required to submit scores from the Graduate Record Exam (GRE). Average GRE scores of successful applicants since 1998 have been approximately 550 Verbal and 550 Quantitative. Also required is a grade point average (GPA) of 3.00 as calculated by the Graduate School.

Applicants holding first professional degrees in landscape architecture, or degrees related to landscape architecture (such as architecture, engineering, environmental design, horticulture, interior design, planning, and the like) are required to submit portfolios reflecting the applicants' professional and/or academic experiences and interests. Portfolios are assessed according to proficiency in design, presentation and layout, technical skills, and content, similar to criteria used in design studios.

Applicants who have a weakness in one of the criteria for admission can enhance their credentials with strengths in the remaining criteria.

Applicants can be admitted according to four conditions: Unconditional; Provisional; Probationary; and, Deferred. *Applicants who do not meet the criteria of one of these conditions will be denied admission to the program.*

## Unconditional Admission

Applicants must possess a bachelor's degree from an accredited college or university. Transcripts from all previous college or university work, along with scores from the Graduate Record Exam (GRE), and three letters of recommendation are required of all applicants. In addition, applicants should have a minimum Grade Point Average (GPA) of 3.0, as calculated by the Graduate School. Applicants holding the first professional degree in landscape architecture, or a related field, must submit a portfolio.

# Program in Landscape Architecture

[www.uta.edu/architecture](http://www.uta.edu/architecture)

**Area of Study and Degree**  
Landscape Architecture  
M.L.A.

**Master's Degree Plan**  
Thesis

**Dean, School of Architecture**  
Donald Gatzke  
203 Architecture, 817-272-2801

**Director, Landscape Architecture**  
Pat D. Taylor  
203B Architecture, 817-272-2801

**Graduate Advisor**  
Pat D. Taylor  
203B Architecture, 817-272-2801

**Graduate Faculty**  
**Associate Professors**  
Robinette, Taylor

**Assistant Professor**  
Lee

**Adjunct Assistant Professors**  
Bass, Fain, Hopman,  
Mycoskie, Salam, Williams

Appropriate members of the graduate faculty from Architecture

### Provisional Admission

Those who have submitted their applications forms, but whose packets are incomplete, can be admitted provisionally if their GPA meets minimum requirements, and if the program and the Graduate School have received official transcripts. In this case, incomplete materials could include letters of recommendation, GRE scores, and/or portfolios.

### Probationary Admission

Those who have weaknesses in no more than two of the Degree Requirements (letters of recommendation, GRE scores, and GPA), can be admitted on probation, with the condition that they make no less than a B in the first 12 hours of coursework in landscape architecture. Such students must complete no fewer than 9 credits during the semester in which they are on probation.

### Deferred Admission

Those who have weaknesses in no more than two of the Degree Requirements ( letters of recommendation, GRE scores, and GPA), and/or who have not submitted all of the materials required for unconditional admission, can have their applications deferred for one semester, until outstanding requirements and criteria are met.

### International Student Admission

International applicants must meet the Degree Requirements (letters of recommendation, GRE scores, and GPA), and must be admitted in one of the admission categories described above. In addition, applicants whose native language is not English must have a demonstrated speaking ability in English, and they must meet the program's minimum required score of 575, or the equivalent score on the computer based test, on the Test of English as a Foreign Language (TOEFL). International applicants who do not meet the program's minimum TOEFL score, must complete extramural training in English, as approved by the program and the Graduate School.

### Graduate Teaching/Research Assistantships

To be considered for a Graduate Teaching or Research Assistantship, the candidate must be admitted without provisional conditions.

### Fellowships

To be considered for a Dean's Fellowship, the candidate must have a favorable review in most of the evaluation criteria. Fellowships in landscape architecture are limited and very competitive. Candidates must be new students coming to UT Arlington, must have a GPA of 3.0 in their last 60 undergraduate credit hours and any graduate hours, and must be enrolled in a minimum of 6 hours in both long semesters to retain their fellowships.

## Degree Requirements

### First Professional Degree Program

For students holding a college degree in a field other than design, some prerequisite courses usually are required such as design, plant materials, technology, drawing, theory, and history. The extent and number of such courses depends upon the student's previous college experience and demonstrated skills.

The core curriculum in the Program in Landscape Architecture prepares students holding a college degree in a field other than landscape architecture or a related design discipline to complete the requirements

for the first professional degree in landscape architecture. The core curriculum also provides students with the basic equivalent of a bachelor's degree in landscape architecture. For full-time students with degrees from other non-design disciplines, the core usually takes three semesters to complete. For all students, electives must be concentrated in a specialization or interest area which supports the student's thesis and/or the student's professional objectives.

An approved degree plan must be submitted no later than the start of the student's second semester of graduate work.

The following coursework is a suggestion to meet the program mission. Each student will be counseled, based upon interests and background, to develop an appropriate degree plan.

#### The Core Curriculum

##### Semester 1

LARC 5661 Design Studio I  
 LARC 5320 Communications for Landscape Architects  
 LARC 5341 Landscape Technology I  
 LARC 5330 Plant Identification and Ecology  
 Total Credit Hours: 15

##### Semester 2

LARC 5662 Design Studio II  
 LARC 5342 Landscape Technology II  
 LARC 5312 History and Theory of Landscape Architecture I  
 LARC 5331 Planting Design  
 Total Credit Hours: 15

##### Semester 3

LARC 5663 Design Studio III: Site Planning  
 Landscape Architecture Elective (3 hours)  
 LARC 5313 History and Theory of Landscape Architecture II  
 LARC 5321 Advanced Communications (or approved substitute)  
 Total Credit Hours: 15

After completing 45 credit hours, the first professional degree student is evaluated by means of an academic review and portfolio review by the Graduate Studies Committee. The committee identifies areas of strength and weakness in the student's performance and recommends appropriate action.

Upon completion of the three core semesters, the student is required to develop an area of specialization or primary interest. The student must consult with faculty advisors to complete this step, which includes a preliminary agreement between student and faculty advisors regarding the specialization or primary interest and the appropriate research method to support it. If a student is interested in Advanced Landscape Architecture, for example, a probable program of study could look like this:

#### Advanced Landscape Architecture

##### Semester 4

LARC 5664 Design Studio IV (CAD experience required)  
 LARC 5340 Professional Practice  
 LARC 5380 Research Methods in Landscape Architecture  
 LARC 5302 Land Development Planning  
 Total Credit Hours: 15

##### Semester Between Academic Year 2 and 3

LARC 5681 Professional Practicum or  
 LARC 5695 Independent Study Abroad or  
 LARC 5683 Independent Study Area of Specialization or  
 Controlled Electives

LARC 5660 Enrichment Design Studio (if necessary)  
Total Credit Hours: 6

**Semester 5**  
LARC 5665 Design Studio V  
Advanced or Independent Study in Landscape Architecture  
(9 hours)  
Total Credit Hours: 15

**Semester 6**  
LARC 5698 Thesis  
LARC 5294 Master's Comprehensive Examination  
Advanced or Independent Study in Landscape Architecture  
(3 hours)  
Total Credit Hours: 11

Minimum Credit Hours Required for Graduation: 92  
Students pursuing other primary areas of interest also must consult with appropriate faculty advisors for approval.

### Advanced Standing

Students from backgrounds other than landscape architecture or its related fields must complete the 92 credits required in the curriculum. Students with degrees and/or professional experience in fields related to landscape architecture (such as architecture, engineering, environmental design, horticulture, interior design, planning and the like) may apply for advanced standing, allowing them to enter the academic phase (second year) of the curriculum. Advanced standing in these cases requires a minimum of 62 total credit hours for graduation.

Students with first professional degrees in landscape architecture also may apply for advanced standing, allowing them to enter the research (third year) phase of the curriculum. Advanced standing in these cases requires a minimum of 30 total credit hours for graduation.

### Minimum Program for Advanced Standing

(Students from Fields of Study Related to Landscape Architecture)

**Semester 1**  
LARC 5663 Design Studio III  
LARC 5330 Plant Identification and Ecology  
LARC 5321 Advanced Communications (or approved substitute)  
LARC 5313 History and Theory of Landscape Architecture II  
Total Credit Hours: 15

**Semester 2**  
LARC 5664 Design Studio IV (CAD experience required)  
LARC 5342 Landscape Technology II  
LARC 5332 Planting Design  
LARC 5302 Land Development Planning  
Total Credit Hours: 15

**Semester Between Academic Year 1 and 2**  
LARC 5681 Professional Practicum or  
LARC 5695 Independent Study Abroad or  
LARC 5683 Independent Study Specialization  
Total Credit Hours: 6

**Semester 3**  
LARC 5665 Design Studio V  
LARC 5340 Professional Practice  
LARC 5380 Research Methods in Landscape Architecture  
Study in primary area of interest (3 hours)  
Total Credit Hours: 15

**Semester 4**  
LARC 5698 Thesis  
LARC 5294 Master's Comprehensive Examination  
Study in specialization (3 hours)  
Total Credit Hours: 11

Minimum Credit Hours Required for Graduation: 62

### Minimum Program for Advanced Standing

(Students with First Professional Degrees in Landscape Architecture)

**Semester 1**  
LARC 5665 Design Studio V  
LARC 5380 Research Methods in Landscape Architecture  
Specialization Option Courses (6 hours)  
Total Credit Hours: 15

**Semester 2**  
LARC 5698 Thesis  
LARC 5294 Master's Comprehensive Examination  
LARC 5302 Land Development Planning  
Specialization Option Courses, Independent Study (4 hours)  
Total Credit Hours: 15

Minimum Credit Hours Required for Graduation: 30

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Landscape Architecture (LARC)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5294. MASTER'S COMPREHENSIVE EXAMINATION.** Must be taken concurrently with Thesis. Directed study, consultation, and comprehensive examination of coursework, leading to and including the thesis. Oral presentation required. Required of all Master of Landscape Architecture students in the semester in which they plan to graduate. Graded P/F/R.

**5301. SITE PLANNING AND DEVELOPMENT PROCESSES (3-0).** Presents the processes and practices of site planning and development, including site inventory, analysis, and assessment of potential building sites. Students examine the natural, cultural, and social systems that affect design decisions, as well as the language and literature of landscape architecture.

**5302. LAND DEVELOPMENT PLANNING (3-0).** The process of land development planning for landscape architects. Detailed expansion of LARC 5301. Uses case studies in land development planning to instruct students in the environmental, economic, legal, and visual issues associated with the land planning process.

**5312. HISTORY AND THEORY OF LANDSCAPE ARCHITECTURE I (3-0).** Traces landscape planning and design from pre-history through Egyptian, Roman, Islamic, and Medieval gardens to Renaissance, Italian, French, and English landscape approaches, culminating in the mid-19th century. Relates landscape design to the societal, cultural, technological, and belief systems of the period.

**5313. HISTORY AND THEORY OF LANDSCAPE ARCHITECTURE II (3-0).** The contemporary history of the profession from Andrew Jackson Downing to present day. The growth and development of the American Society of Landscape Architects (ASLA), professional education, the environmental movement, large scale regional planning, and significant landscape architectural projects of the past century. Prerequisite: LARC 5312.

**5320. COMMUNICATIONS FOR LANDSCAPE ARCHITECTS (2-4).** Primary class for the development of graphic and communication skills in landscape architecture. Provides a method for transferring conceptual ideas into legible graphic presentations. Should be taken concurrently with LARC 5661 Design Studio I.

**5321. ADVANCED COMMUNICATIONS (2-4).** Presentation techniques; expansion on graphic thinking and communication presented in LARC 5320. Prerequisite: LARC 5320 or permission of the instructor. Lab fee: \$2. Course Specific Fee: \$22.

**5324. LANDSCAPE ARCHITECTURE AND ENVIRONMENTAL ART SEMINAR (2-2).** Siting and creating works of art; analysis of the creative processes of the two different-yet-related disciplines; case studies of built works. Communication of ideas through environmental media. Prerequisites: completion of landscape architecture core, permission of the instructor.

**5325. COLLABORATIVE WORKS SEMINAR (2-2).** Examines the professional roles of each of the associated disciplines of landscape architecture. Case studies, internship presentations, and guest lecturers from each area serve as the basis for discussion, analysis, and discovery of the workings of collaborative processes. Investigates the communication processes of successful collaborative works. Prerequisites: completion of landscape architecture core, permission of the instructor.

**5330. PLANT IDENTIFICATION AND ECOLOGY (2-4).** Examines the ecology, growth characteristics, and design applications of plant materials. Local field trips are required. Prerequisite: LARC 5301 or permission of instructor.

**5331. PLANTING DESIGN (2-4).** Design applications of plant material. Students apply the design problem-solving approach to the detailed aspects of planting design and complete a progressively-more-difficult series of problems to practice techniques and methods of plant manipulation that encompass both the aesthetic and functional purposes of planting design. Prerequisites: LARC 5663, 5330, and 5341, or permission of instructor.

**5340. PROFESSIONAL PRACTICE (3-0).** Ethical, legal, and administrative aspects of the public, private, and academic spectrums of practice in landscape architecture.

**5341. LANDSCAPE TECHNOLOGY I (2-4).** Surveying, site grading, storm water management, vertical and horizontal curves and an overview of the construction documentation process employed by landscape architects. Prerequisite: LARC 5301 or permission of instructor.

**5342. LANDSCAPE TECHNOLOGY II (2-4).** Materials and techniques employed in the construction process. Materials are examined through completion of design details that specify how they can be used as part of a landscape construction. Detailed methods of design evaluation such as drawings, scale models, and actual construction sites are included. Prerequisite: LARC 5341 or permission of instructor.

**5343. LANDSCAPE TECHNOLOGY III (2-4).** Preparation of a set of construction drawings for a design project from a previous studio. Layout, grading, irrigation, utilities, planting, construction, detailing, specifications, and cost estimating. Prerequisite: LARC 5342 or permission of the instructor.

**5344. PARK AND RECREATION DESIGN AND PLANNING (2-2).** History, data collection, program formulation, and design principles for public and private park and recreation systems and sites. Includes management objectives, operations and maintenance, and public input as planning components. Prerequisites: LARC 5320, 5661.

**5346. IRRIGATION TECHNIQUES (2-4).** The structural and technical aspects of irrigation design and application, including effective use and care of native plant materials and designing for native environments. Prerequisites: completion of landscape architecture core, permission of the instructor.

**5350. LANDSCAPE ARCHITECTURE COMPUTER APPLICATIONS (2-4).** Examines various computer applications currently used in office practice. Computer applications used for office management, site analysis, design development, construction documentation, and cost estimating. Introduction to computer aided design applications and the underlying theories of application.

**5351. ADVANCED COMPUTER-AIDED DESIGN (2-4).** Expansion of LARC 5350. Students complete a typical design problem utilizing computer-aided methods; students examine the differences between traditional manual methods of design and computer-aided techniques. Instruction in data standards, methods of translation, layering of design information, and connections between the phases of the design process. Prerequisite: LARC 5350, or permission of the instructor.

**5352. GIS: APPLICATIONS IN ENVIRONMENTAL PLANNING (2-4).** Geographic Information System technology as a tool for environmental planning problems. Instruction in software for use in environmental inventory and in analysis and assessment of various design and planning alternatives. Prerequisite: LARC 5350, or permission of the instructor.

**5353. THE FUTURE OF COMPUTING IN LANDSCAPE ARCHITECTURE (2-4).** Current models for increased levels of computer-aided decision-making in landscape architecture and affiliated disciplines. Formal and informal processes of design are investigated to determine the potential for expanding the computer-aided design and planning process. Prerequisite: LARC 5351 or permission of instructor.

**5380. RESEARCH METHODS IN LANDSCAPE ARCHITECTURE (3-0).** Theories of practical research and methods of applying them as they relate to landscape architecture. Includes research program development, data collection and analysis, proposal writing and research techniques and tools. Emphasis is on qualitative methods. Prerequisite: LARC 5663 or permission of instructor.

**5382. SEMINAR IN URBAN DESIGN (3-0).** Advanced presentation and discussion of issues related to contemporary and historic urban design. Students present and lead informed discussions on topics such as population density, environmental management, waterfront development, allocation of open space, public art, urban form, and cultural determination. Prerequisite: LARC 5663 or permission of instructor.

**5383. SEMINAR IN LANDSCAPE AESTHETICS (3-0).** Advanced presentation and discussion of issues related to contemporary and historic aspects of landscape aesthetics. Students present and lead informed discussions and debate on topics such as landscape beauty, values, and perception in exterior space, aesthetics versus function, and philosophic interpretations of beauty applied to the landscape. Prerequisites: LARC 5663 and 5313, or permission of instructor.

**5623. STUDIO TEACHING PRACTICUM (0-9).** Students spend one semester as a teaching assistant in the studio sequence under the supervision of the assigned faculty member. They will observe the methods employed in the studio and prepare a comprehensive evaluation of the studio in conjunction with the instructor. The students will oversee one short studio project and evaluate its success or failure based on the criteria learned in LARC 5322 and the goals and objectives of the test project. Prerequisites: LARC 5322, completion of landscape architecture core, or permission of the instructor.

**5660. ENRICHMENT DESIGN STUDIO (3-9).** Review of the principles and processes of design presented in Design Studios I, II, and III. Provides an opportunity for students with weak design and graphic skills to improve those skills to meet requirements for Design Studio IV. Course can use design competitions as projects.

**5661. DESIGN STUDIO I (3-9).** A design course for students with no background in landscape architecture or design. Outlines the site planning and site design decision-making process. Focuses on providing students with the verbal, intellectual, and graphic tools necessary to successfully tackle a design problem and bring it to a schematic level of completion. It is highly recommended that this course be taken concurrently with LARC 5320.

**5662. DESIGN STUDIO II (3-9).** A continuation of 5661. Basic design principles and their application to three-dimensional spaces. Examines how humans occupy exterior space and combines this information with the principles of design to create garden scale models. Models are used as a medium for design expression. Landscape character, design simulation, landscape media, landscape context, and human spatial experience are included. Prerequisites: LARC 5320 and 5661, or permission of instructor.

**5663. DESIGN STUDIO III: SITE PLANNING (3-9).** Features the process of solving complicated site planning and site design problems. Each phase of the site planning process is examined in detail by undertaking one or more studio problems that involve resolution of issues related to existing site conditions, program development, conceptual design, design development, and design detailing. Prerequisites: LARC 5661, 5662, 5320, 5301, 5340, 5312, 5329, and portfolio review, or permission of instructor.

**5664. DESIGN STUDIO IV: ENVIRONMENTAL PLANNING (3-9).** Expands the student's concept of the environment as a large

scale ecologic unit independent of political boundaries. Primary focus is on Geographic Information Systems (GIS); therefore, computer-aided design experience is a prerequisite. Presents a process of solving large scale planning problems through data gathering and information processing techniques commonly used by landscape architects employed in environmental planning. Prerequisite: LARC 5663 or permission of instructor.

**5665. DESIGN STUDIO V: THE URBAN LANDSCAPE (3-9).** The summary studio of the design sequence. Basic design principles are reiterated and problems are introduced which require interaction with architects, planners, urban designers, developers, or administrators, on complex urban projects. Course often uses design competitions as projects. Prerequisite: LARC 5664 or permission of instructor.

**5666. DESIGN STUDIO VI (3-9).** This studio addresses specific design issues within a given area of study. Landscape architectural problems utilizing skills from the landscape architectural core are used to bring unique, specialized skills to the problem-solving process. May be repeated for credit. Prerequisite: LARC 5663, or permission of instructor.

**5667. DESIGN STUDIO VII (3-9).** This studio addresses specific design issues within a given area of study. Landscape architectural problems utilizing skills from the landscape architectural core are used to bring unique, specialized skills to the problem-solving process. Prerequisite: LARC 5664 or LARC 5666 or permission of the instructor.

**5368, 5668. DESIGN PRACTICUM.** An internship program which includes approved work done in a landscape architect's office or one of the related design fields. The purpose of the practicum is to provide students with practical design experience. Students may enroll in 5368 for half-time employment or 5668 for full time employment. Graded P/F.

**5191, 5391, 5691. CONFERENCE COURSE IN LANDSCAPE ARCHITECTURE.** Special subjects and issues in landscape architecture that may be studied independently under faculty supervision. May be repeated for credit. Prerequisite: LARC 5663 or permission of instructor. Graded P/F/R.

**5195, 5295, 5395, 5695. SELECTED TOPICS IN LANDSCAPE ARCHITECTURE.** Selected studio or lecture course offerings in specific areas of expertise or interest. Course allows the program the flexibility to address the ever-changing needs of students and the profession by offering courses beyond the scope of the core curriculum. May be repeated for credit. Prerequisite: LARC 5380 or permission of instructor.

**5698. THESIS.** Independent research and presentation of findings under the direction of a supervising committee. The findings of the thesis should extend the boundaries of the professional discipline by either presenting new and unique ideas or information, or by interpreting existing knowledge from a different perspective. Prerequisites: LARC 5380, 5665, and must be taken concurrently with LARC 5294. Graded P/F/R.

# The College of Business Administration

Dean: Daniel D. Himarios, Ph.D.  
334 Business Bldg. • Box 19377 • 817-272-2881 • [www2.uta.edu/gradbiz](http://www2.uta.edu/gradbiz)

## Mission and Philosophy

The College of Business Administration strives to be a recognized contributor in the field of business education and research. It is our mission to build and maintain a quality educational environment, creating value for our constituencies.

Our achievement-focused programs produce quality graduates at all degree levels. These programs respond to changing needs and opportunities, generate and communicate new knowledge and ideas to benefit the scholarly, public and private sectors, and provide a wide range of intellectual and professional services locally, regionally, nationally and internationally.

Our philosophy can be summarized in the following objectives:

1. To discover and disseminate knowledge that, through its relevance and rigor, benefits our students, practitioners and other constituencies.
2. To continue to develop and provide instructional programs that meet the needs of our students: part-time, full-time, employed and international.
3. To maintain a rigorous and effective client-focused environment that capitalizes on our urban setting.
4. To continually improve all our academic programs, with special emphasis on master's programs, to effectively address the diversified needs of the Dallas/Fort Worth Metroplex.
5. To further our community interaction by offering off-campus courses, distance education and professional development seminars.
6. To enhance the visibility of the college and improve its financial strength through increased external funding.
7. To provide advisory services to academic, professional and other organizations.

## History and Overview

Since its origination in 1959, the College of Business Administration has been one of the fastest growing business schools in the nation. This growth has mirrored the dynamic growth of the D/FW Metroplex as the college has worked hard to provide high quality educational programs. The college is organized into six academic departments: Accounting, Economics, Finance and Real Estate, Information Systems and Operations Management, Management, and Marketing. A total of 138 full-time equivalent faculty organize and conduct classes, including 97 with doctoral degrees from some of the top schools in the nation. The college currently enrolls 5,500 students, of whom more than 1,000 are enrolled in 12 graduate business programs.

## Accreditation

The College of Business Administration is fully accredited in business and accounting at both the undergraduate and graduate levels by the AACSB-International.

## Scholastic Activity and Research Interests of the Faculty

Many of the faculty have professional certifications and years of experience in the business world, including serving as consultants, expert witnesses, and in other professional capacities. They actively engage in research that enables them to be at the forefront of the discovery of new knowledge in their fields. All these activities allow them to bring professional experiences and new ideas into the classroom.

## Special Programs and Opportunities The Graduate Advanced Studies Program

This is a certificate program open to those holding a graduate degree in a business field. Applicants must meet normal MBA admissions requirements and complete 12-21 semester hours of graduate courses in a specified area. This is an excellent way for business professionals to update their business skills in advanced areas.

## Dual Degree Programs

The college offers a rich array of dual degree opportunities that build synergistic skill sets that prepare students for more advanced career opportunities. While most dual degree programs include two graduate business degrees, the Professional Management Option in the MBA program allows professionals with undergraduate degrees in engineering, architecture, nursing, education, and urban affairs to complete a master's degree in that field along with the MBA. Dual degree programs allow students to earn two degrees with a substantial reduction in course requirements. The MBA Program also offers a special dual degree with Thunderbird's Master of International Management.

## Integrated Five-year Programs Professional Programs in Accounting (PPIA)

The PPIA program is designed to meet the needs of exceptional students. The Professional Program in Accounting allows a student to earn both a bachelor of business administration and master of science in accounting or taxation. Once accepted into this integrated program, students may enroll in graduate courses prior to completing their undergraduate degree. The program may be completed in approximately one less semester than required to earn separate bachelor's and master's degrees.

## Professional Program in Business (PPIB)

The PPIB program is designed for students with outstanding academic performance and very focused interests in pursuing a master's degree. Students can meet requirements for both bachelor's and master's degrees in a stacked, five-year format. The five-year, two-degree program can be completed with up to 12 fewer hours than would be



required in completing the degrees separately. Both degrees are awarded simultaneously using any possible combination of U.T. Arlington undergraduate business programs (B.B.A., B.A., B.S.) and graduate programs (M.B.A., M.S., M.A.). An interested student should consult with an undergraduate advisor and appropriate graduate program advisor prior to entering the senior year of undergraduate study.

### Careers Program

An optional four-part Careers Program is open to all graduate students. This program provides excellent support for students in identifying and preparing for the career of their choice. The program begins with a comprehensive careers class (BUS4 5338) that provides extensive individual assessments, a study of analytical models of career choice, an exploration of the opportunities available in the marketplace, and mentoring and networking opportunities. The second part is a graduate internship program that is available to students of all graduate programs to assist them in gaining experience integral to their careers. Study abroad and exchange programs comprise the third part of the program. The final component is advice from faculty members on how to best build a program of study that focuses upon a particular career track. The MBA program supports 65 different career tracks, while the other master's programs are designed for specialized study.

### Internship Program

Graduate students are encouraged to participate in internships to supplement and complement classroom education by providing valuable experience and training in their chosen area of expertise. Internships allow students to meet and interact with professionals in the work setting, identify and develop critical professional skills, clarify their own career goals and interests, and develop important contacts for future development. This paid internship program is open to all graduate students who have completed nine hours of graduate courses, are in good academic standing (GPA => 3.0), and have secured their advisor's approval for up to three hours of graduate credit. Interested students should ask for a fact sheet and an application in the Graduate Business Services Office. After gaining the advisor's approval, students will complete an application and meet with the appropriate departmental internship coordinator. Once an internship is obtained, the coordinator will monitor progress and assign an appropriate grade.

### Study Abroad/Exchange Programs

The leaders for the 21st century will be deeply involved in business opportunities around the world. Many study abroad/exchange programs are available to help students prepare in both curricular and extracurricular ways for these future international leadership roles. Students wishing to study abroad are encouraged to review the many opportunities contained in the Study Abroad Library in the International Office. Once a specific program is identified, students discuss the available courses with their advisor to ensure they will help meet degree requirements. Depending on their terms, study abroad/exchange programs may allow students to complete courses as resident credit or as transfer credit.

### Programs

Graduate programs include the Ph.D. in Business Administration and the Master of Business Administration at the college level and eight master's level specialized programs in the departments. All programs are listed below.

#### Graduate Programs at the College Level

- Master of Business Administration
- Executive Master of Business Administration
- Online Master of Business Administration
- Ph.D. in Business Administration

#### Specialized Programs at the Department Level

- Master of Professional Accounting
- Master of Science in Accounting
- Master of Science in Taxation
- Master of Arts in Economics
- Master of Science in Information Systems
- Master of Science in Marketing Research
- Master of Science in Human Resource Management
- Master of Science in Real Estate
- Master of Science in Health Care Administration

# Department of Accounting

www2.uta.edu/accounting  
accounting@uta.edu

## Areas of Study and Degrees

### Accounting

M.P.A., M.S.

### Taxation

M.S., Tax Certificate

### Business Administration

M.B.A., Ph.D.

## Master's Degree Plans

Thesis and Non-Thesis

### Chair

Larry Walther

409 Business Building

lwalther@uta.edu

817-272-3388

### Graduate Advisor

graduate.accounting.advisor@uta.edu

817-272-3047

### Ph.D. Coordinator

Martin Taylor

431 Business Building

mtaylor@uta.edu

817-272-3030

### Graduate Faculty

#### Professors

Dunn, T. Hall, Taylor

#### Associate Professors

B. Hall, Ho, Mark

McConnell, Tsay, Walther

#### Assistant Professor

Subramaniam

#### Professors Emeritus

Ross, Witt

## Objective

The objective of the Master of Professional Accounting, the Master of Science in Accounting, and the Master of Science in Taxation degree programs is to prepare students for professional careers in the public, private, or governmental sector. As a part of this objective, these programs are designed to provide the educational background to become a Certified Public Accountant or to attain other professional certifications. The MPA program, appropriate for students without significant prior study in accounting, is also designed to provide an understanding of selected fields such as management, finance, economics, and business law. The MS in Accounting and MS in Taxation are more specialized degrees which build on the individual's prior background in accounting and business-related subjects.

The department also offers a Certificate in Taxation. The objective of this certificate program is to serve degreed professionals who wish to update or add to their knowledge of taxation.

## Careers in Accounting

Accounting is a career without limits. Accountants serve as analysts, consultants, and problem-solvers in business and government. Earning an accounting degree opens up a diverse array of career opportunities including: partner in an international accounting or consulting firm, corporate controller, chief financial officer, director of internal auditing, financial planner, or commercial lender. Compensation is highly competitive with excellent geographic mobility.

Students of accounting learn to use and control information technology systems, prepare and analyze financial reports, structure business transactions, and develop effective business plans. Individuals who like being challenged by a variety of situations and technologies and who enjoy identifying, analyzing, and solving problems are well-suited to majoring in accounting. Additional information about the accounting profession and its diverse opportunities can be obtained at <http://aicpa.org/nolimits/index.htm>.

## Accreditation

The Department of Accounting is fully accredited by AACSB - The International Association for Management Education. The department is also a member of the Federation of Schools of Accountancy.

## Admission Requirements

### Degree-Seeking Students

#### Regular Admission

The Department of Accounting's (the department) admission criteria for its master's programs have been developed to conform to State of Texas requirements and are based on the general admission requirements of the Graduate School. Applicants are encouraged to include a resume that highlights professional and personal accomplishments with their application.

Students for whom English is not their native language must achieve a score of 550 on the TOEFL examination. International applicants who score below 550 minimum on the TOEFL examination may be admitted with the condition that they pass an English proficiency examination or complete UTA's Graduate English Skills Program prior to beginning graduate coursework.

All applications for admission are reviewed individually. Admission decisions are based on factors associated with academic success in

graduate study and may include any of the following criteria: (1) undergraduate grade point average, (2) graduate grade point average, (3) GMAT scores, (4) professional work experience, (5) professional certification or licensure, (6) letters of reference, (7) the applicant's personal statement, (8) prior successful completion of a baccalaureate degree, (9) prior successful completion of a post-baccalaureate degree, and (10) general and specific program accreditation status of the applicant's degree granting institution(s). Standardized test scores are not used as the sole criterion for admitting applicants or denying admission to applicants. Further details regarding the admission process are provided under the "Advising" link on the departmental Web site at [www2.uta.edu/accounting](http://www2.uta.edu/accounting).

Depending on the circumstances applicants may:

- Have their application denied or deferred; or
- Receive unconditional, probationary, or provisional admittance.

Applicants whose documentation does not satisfactorily demonstrate readiness for graduate study may be denied admission. A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

Unconditional admission is granted to applicants whose documentation clearly demonstrates a readiness for graduate study. Probationary admission may be granted to individuals who do not meet the department's admission requirements but who nevertheless show promise for successful graduate study. Students admitted on this basis must meet certain academic requirements to remain in the program (such as no grade less than 'B' for the first 12 hours of graduate study). An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission. Provisional status lasts through the initial semester of admission.

### Alternative Admission

The Department of Accounting participates in the University's GMAT Waiver and Advanced Admission Policies. Applicants to any of the accounting graduate degree programs who have received an undergraduate accounting degree from UTA and meet certain other requirements may qualify for waiver of a GMAT score. For more complete information on this matter, visit the Department of Accounting Web site at [www2.uta.edu/accounting](http://www2.uta.edu/accounting).

## University and College Fellowship/ Scholarship Awards

The Department of Accounting follows all applicable Graduate School criteria when awarding graduate fellowships and scholarships. Students who are unconditionally admitted, have a minimum undergraduate grade point average of 3.0 as calculated by the Graduate School (or 3.0 at the graduate level), and enroll for a minimum of six semester credit hours will be eligible for available fellowship and/or scholarship support. A standardized test score (GMAT) will not be used as a sole criterion for determining fellowship and/or scholarship support.

## Classroom Time Flexibility

All of the graduate degree programs offered by the Department of Accounting can be completed by individuals who work full-time and wish to attend class in the evenings. Each student's program of work must be approved by the Accounting Graduate Advisor and must

include a minimum of 27 semester hours taken at The University of Texas at Arlington. Courses which are not considered suitable to a student's program of work will not be approved. During the final semester, students who have written a thesis must defend the thesis in an oral examination.

## Reservation of Graduate Courses by Undergraduate Students

Students who meet the criteria in the relevant Graduate Catalog and are currently enrolled as an undergraduate student at U.T. Arlington may, based on the criteria and conditions in the Graduate Catalog, be allowed to take up to 12 semester hours of graduate coursework without taking the GMAT or otherwise making application to a graduate program. For more complete information on this matter, visit the Department of Accounting Web site at [www2.uta.edu/accounting](http://www2.uta.edu/accounting).

## Departmental Grade and Graduation Requirements

Students enrolled in accounting degree programs are subject to the grade requirements for academic probation and graduation as specified under the general regulations of the Graduate School. In addition to the Graduate School's Regulations, the Department of Accounting will not allow any course in which a student earns a D or F to be applied toward the student's program of work.

## Professional Program in Accounting

The Department of Accounting offers a Professional Program in Accounting (PPIA) that allows students to earn both a bachelor's degree and master's degree upon completion of an integrated 152-hour program. This integrated program can be completed in approximately one less semester than required to earn separate bachelor's and master's degrees. Students completing this program will have earned sufficient hours to sit for the CPA exam.

### PPIA Enrollment and Course Sequence

Students will get maximum effectiveness from the PPIA program if they apply two semesters before completing undergraduate coursework.

Upon admission to the PPIA, students will meet with the Graduate Advisor to obtain their graduate degree plan. Students will continue following their undergraduate plan until all appropriate undergraduate coursework is completed. Courses omitted from the undergraduate coursework will be taken as part of the MS program. These courses will be taken later as part of the graduate program and will be applied to both the graduate degree and the undergraduate accounting degree. At the beginning of the last semester of undergraduate enrollment, PPIA students will formally apply for graduate admission. At this point, students should again meet with the graduate advisor to ensure a smooth transition to graduate school.

### PPIA Admission Requirements

The Department of Accounting's (the department) admission criteria for its PPIA program have been developed to conform to State of Texas requirements and are based on the general admission requirements of the Graduate School. Applicants are encouraged to include a resume that highlights professional and personal accomplishments with their application.

All applications for admission to the PPIA program are reviewed individually. Admission decisions are based on factors associated with academic success in graduate study and may include any of the following criteria: (1) undergraduate grade point average, (2) performance in accounting classes at UTA, (3) GMAT scores, (4) professional work experience, (5) personal accomplishments, (6) letters of reference, and (7) the applicant's personal statement. Standardized test scores are not used as the sole criterion for admitting applicants or denying admission to applicants. Further details regarding the admission process are provided under the "Advising" link on the departmental Web site at [www2.uta.edu/accounting](http://www2.uta.edu/accounting).

Depending on the circumstances applicants may:

- Have their application denied or deferred; or
- Receive unconditional, or provisional admittance.

Applicants whose documentation does not satisfactorily demonstrate readiness for graduate study may be denied admission. A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

Unconditional admission is granted to applicants whose documentation clearly demonstrates a readiness for graduate study. An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission. Provisional status lasts through the initial semester of admission.

### PPIA Advising

Students considering the PPIA program are strongly encouraged to meet with the graduate advisor in order to obtain all of the benefits of this program. Assistance is essential in the area of course selection at both the undergraduate and graduate levels. Departmental advising can help a student minimize the semester hour requirements for each degree.

Until admission to the PPIA program is granted, students will still be advised by the College of Business Administration Undergraduate Advising Center.

After admission to the PPIA program, students will be advised by the Accounting Department's Graduate Advisor.

## Program Coursework

### Pre-Enrollment Competency Requirements

The accounting graduate degree programs have pre-enrollment competency requirements as well as accounting degree requirements. Applicants can have some or all pre-enrollment competence areas waived if they have completed similar courses at an accredited college or university within the last 10 years and received a grade of C or better in those courses. Extensions to the 10-year limit may be granted for managers and executives who have completed continuing education requirement courses to remain current in their profession or have extensive relevant experience. Normally, individuals who have completed an undergraduate degree in accounting from an accredited university within the past 10 years will have met all the pre-enrollment competency requirements.

### Accounting Degree Requirements

Accounting degree requirement courses may be waived if an equivalent course is completed at an accredited college or university within the last 10 years and a grade of C or better is earned in the respective course. Accounting degree requirement courses are waived with replacement.

Students should be aware that the current Graduate Catalog permits a maximum of 9 hours of accounting degree requirement coursework to be transferred from another AACSB accredited school if approved by the Dean of Graduate Studies. Courses used to waive program course requirements cannot also be counted toward transfer hours. The same course can be used to satisfy an accounting degree requirement course waiver or as a transfer course but not both.

Transfer of graduate classes from other universities or colleges will be considered on a case-by-case basis. To be eligible for consideration for transfer credit, the hours must: (a) be graduate-level coursework; (b) not have been used or applied toward any other degree the student has earned; (c) have been taken within the past 10 years; and (d) have been completed with a grade of A, B, or C.

## Master of Science in Accounting

This program is designed for students who have an undergraduate degree in accounting or a degree in business administration with a major in accounting who wish to specialize in an area of accounting other than tax. The student, with the assistance and consent of the Graduate Advisor, will develop a course of study designed to meet his or her educational needs in light of previous academic work and career objectives.

The M.S. in Accounting requires the student to complete a minimum of 36 semester hours of coursework, 24 of which must be in the accounting discipline.

If students have not satisfactorily completed all of their pre-enrollment competency requirements, they will, in addition to their program of work, also be required to complete those pre-enrollment competency courses. A grade of A, B, or C is required for each pre-enrollment competency course. If college courses in these areas have not been completed with a grade of A, B, or C, students must include these courses in their program of work. If needed, these courses may be completed at the undergraduate or graduate level.

### M.S. in Accounting Tracks

Students can select various specialization tracks in an accounting-related discipline such as external reporting, audit/systems or managerial. Students may also choose to direct their 12 hours of business electives toward a specialized track such as finance, economics, information systems, management or marketing. Recommended course sequences for both the accounting and external tracks can be obtained by consulting the "Advising" section of the departmental Web site at [www2.uta.edu/accounting](http://www2.uta.edu/accounting).

## Master of Professional Accounting (MPA)

The MPA program is designed for individuals who hold an undergraduate degree in any major other than accounting (economics, engineering, finance, liberal arts, management, mathematics, science, etc.). The MPA program requires the student to complete a minimum of 42 semester hours of coursework. If the student has not satisfactorily completed all of their pre-enrollment competency requirements, they will, in addition to their program of work, also be required to complete those pre-enrollment competency courses. A grade of A, B, or C is required for each pre-enrollment competency course. If college courses in these areas have not been completed with a grade of A, B, or C, students must include these courses in their program of work. If needed, these courses may be completed at the undergraduate or graduate level.

For those individuals who hold an undergraduate business degree, the MPA will normally require 42 hours of coursework. For those individuals who hold an undergraduate degree in a non-business discipline, the MPA will normally require 45 hours of coursework for those with a science or engineering undergraduate degree and 51 hours for most other non-business undergraduate degrees. Regardless of undergraduate background, the MPA degree requires a total of 27 hours of accounting plus 6 hours of accounting principles as a pre-enrollment requirement. Thus, MPA graduates will have a total of 33 hours of accounting.

## Master of Science in Taxation

The Master of Science in Taxation (MST) is designed for students who have an undergraduate degree in accounting or a degree in business administration with a major in accounting who wish to specialize in taxation. The student, with the assistance and consent of the Graduate Advisor, will develop a course of study designed to meet his or her educational needs in light of previous academic work and career objectives.

The degree requires a minimum of 36 semester hours, of which 27 semester hours must be accounting. Of the required accounting semester hours, 15 of those semester hours must be in the area of taxation beyond ACCT 5314.

If the student has not satisfactorily completed all of their pre-enrollment competency requirements, they will, in addition to their program of work, also be required to complete those pre-enrollment competency courses as part of their program of work. A grade of A, B, or C is required for each pre-enrollment competency course. If college courses in these areas have not been completed with a grade of A, B, or C, students must include these courses in their program of work. If needed, these courses may be completed at the undergraduate or graduate level.

## Certificate in Taxation

To support The University of Texas at Arlington's mission to provide lifelong learning opportunities to the community, the Department of Accounting offers qualified applicants an opportunity to participate in a Graduate Certificate in Taxation. The program offers graduate courses in specific areas of taxation as a means of

- maintaining and promoting their professional development in an interactive environment;
- acquiring continuing education hours necessary to maintain a professional certification;
- furthering their opportunity to participate in a graduate degree program. Subject to the applicable degree requirements, up to 4 courses taken in the certificate program can be applied toward a master's degree;
- providing quality cost-efficient staff training;
- interacting with other professionals and developing a dialogue that can improve your practice's efficiency and effectiveness. A number of our professors in the program are either currently with the Internal Revenue Service or in practice in the area of specialization associated with the course.

## Admission Requirements

This certification program is a post-baccalaureate educational opportunity available to degreed professionals. It is narrower in scope

and shorter in duration than any of the department's graduate degree programs. To qualify, an applicant must

- have an undergraduate degree;
- have a grade point average of 2.8;
- follow the admission procedures required for a special student.

A GMAT score and letters of recommendation are not required for admission to the program.

## Information About Your Status as a Special Student

Special student status characteristics:

- Good for only one semester
- Must be approved by the Dean of Graduate Studies
- No more than twelve (12) hours of work earned as a special student may be applied to a graduate degree at UTA.

A person who is admitted as a special student and later seeks admission to a degree program must submit a regular Graduate School Application for Admission form, pay the application fee, submit all required documents, and meet all admission requirements, including admission tests and any additional requirements established by the degree program.

## Application to a Graduate Program

Admission as a special student in no way guarantees subsequent unconditional admission into a graduate program or the Graduate School. Anyone who enters the Certification Program and later seeks a graduate degree at the College of Business Administration may apply 12 hours of coursework toward that degree program if done within 6 years of completion of the certificate by petitioning the Graduate School through her/his prospective academic department. Only grades of A and B may be so applied toward graduate credit.

## Terms of Admission

Once admitted, participants may take up to four (4) of the approved courses. The terms of admission allow participants to take only the specific courses approved for the program. Participants would not be allowed to take courses outside of their program without applying for and having been accepted into the graduate program.

## Current Graduate Students

Graduate students currently enrolled in a UTA graduate program may also earn the certificate by notifying the Chair of the Department of Accounting of their intent to participate in the certification program and by successfully completing the prescribed number of classes.

## Available Courses

The Certificate in Taxation requires students to take and successfully complete, with a minimum GPA of 3.0, four advanced tax courses. Those students entering the Certificate Program without having taken the equivalent of the undergraduate tax course will also be required to take a "foundation" course, ACCT 5314.

Courses appropriate for the Certificate Program have been selected because their subject matters directly relate to materials needed by professionals engaged in tax-related activities. Full course descriptions for these advanced courses are included in The University of Texas at Arlington's Graduate Catalog.

## Grade Point Average While in the Certificate Program

All participants in the program must meet the normal GPA requirements of the Graduate School, College and Department of Accounting. In particular, they must maintain an overall GPA of 3.0 in order to receive the Certificate.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Accounting (ACCT)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5301. ACCOUNTING ANALYSIS I (3-0).** Introduction to concepts, purposes, problems, methodology, and terminology of financial accounting.

**5302. ACCOUNTING ANALYSIS II (3-0).** Introduction to concepts, purposes, problems, methodology, and terminology of managerial accounting. Prerequisite: ACCT 5301 or equivalent.

**5311. FINANCIAL ACCOUNTING I (3-0).** Examination of financial accounting process, problems encountered in preparation of financial statements, and concepts and principles used to resolve these problems. Prerequisite: ACCT 5301 or equivalent.

**5312. FINANCIAL ACCOUNTING II (3-0).** Study of additional problems encountered in preparation of financial statements. Prerequisite: ACCT 5311 or equivalent.

**5313. SOFTWARE TOOLS (3-0).** An in-depth study of word processing, spreadsheet, database, and presentation software programs. Prerequisite: ACCT 5302 or equivalent.

**5314. PRINCIPLES OF FEDERAL INCOME TAX (3-0).** A study of general federal income tax principles such as income, deductions, losses and property transactions. The principles of individual taxation will be covered as well as an overview of tax considerations for entities such as corporations and partnerships. Prerequisite: ACCT 5301 or equivalent.

**5315. ACCOUNTING SYSTEMS ANALYSIS (3-0).** Analysis and design of business information processes. Includes coverage of control concepts, audit trails, and the uses of information technology. Emphasis on the role of accounting in collecting, storing, and communicating information for management planning and control. Prerequisite: ACCT 5302 or equivalent.

**5316. AUDITING CONCEPTS AND PRACTICES (3-0).** Concentrates on practice of professional accounting and auditing. Emphasizes decision making in a variety of unstructured situations where decisions demand a grasp of purpose, method, and judgment for their resolution. May not be taken for credit by students who have received credit for a course in auditing. Prerequisites: ACCT 5312 and 5315 or equivalents.

**5317. COST ACCOUNTING (3-0).** Uses and classification of costs incurred in manufacturing. Emphasis on concepts involved in assignment and reporting of costs under job order, process, standard and direct costing systems. Prerequisite: ACCT 5302 or equivalent.

**5318. STUDIES IN AUDITING (3-0).** A critical analysis of advanced topics in both auditing theory and professional practice. Emphasis on: development of auditing theory, generally accepted auditing standards, professional responsibilities, auditing EDP, SEC practice and reporting, cases in audit decision making, and analyses of emerging issues and contemporary problems in auditing. Prerequisite: ACCT 5316 or equivalent.

**5319. FINANCIAL ACCOUNTING III (3-0).** Accounting for business combinations, preparation of consolidated financial statements, multinational operations, partnerships, and estates and trusts. Prerequisite: ACCT 5312 or equivalent.

**5320. GOVERNMENTAL AND NONPROFIT ACCOUNTING (3-0).** Budgeting, accounting and financial reporting, managerial control, and auditing considerations of governmental and nonprofit entities. Prerequisite: ACCT 5312 or equivalent.

**5321. RESEARCH IN ACCOUNTING ISSUES (3-0).** Designed to improve student's ability to research complex areas in accounting and to sharpen understanding and application of accounting concepts and principles. Case studies and problems considered and analyzed. Prerequisite: ACCT 5312 or equivalent.

**5322. ACCOUNTING FOR MANAGEMENT PLANNING AND CONTROL (3-0).** Concentrates on information needs of management for planning and control of operations. Topics include setting corporate objectives, behavioral problems, capital budgeting and profit-planning, the use of quantitative tools, divisional performance evaluation, and transfer pricing. May not be taken for credit by students who previously received credit for ACCT 4302 or equivalent. Prerequisite: ACCT 5302.

**5324. FINANCIAL STATEMENT ANALYSIS (3-0).** A study of the basic financial statements and their use by managers, investors, and creditors. Prerequisite: ACCT 5302 or equivalent.

**5327. CONTEMPORARY ISSUES IN ACCOUNTING THEORY (3-0).** Designed to familiarize students with significant problems currently facing the accounting profession, to examine in depth various solutions proposed by accounting scholars and others, and to strengthen student understanding of today's critical issues in accounting theory. Prerequisite: ACCT 5312 or equivalent.

**5329. SURVEY OF ACCOUNTING SYSTEMS (3-0).** A survey and design critique of typical commercial, horizontal, accounting software systems. Functional areas include general ledger, receivables, payables, payroll, and inventory. Evaluation criteria include data capture, processing features, internal control, audit trails, and reporting capabilities. Prerequisite: ACCT 5315.

**5330. INTERNATIONAL ACCOUNTING AND FINANCIAL REPORTING (3-0).** Financial accounting and reporting principles and practices in various countries, the role of accounting in economic development, as well as the accounting considerations in international business operations—e.g. foreign currency translation, auditing,

accounting systems, taxation, and sensitive payments. Prerequisite: ACCT 5302.

**5332. OPERATIONAL AUDITING (3-0).** A study of operational audit methodology for management audits. Audits of administrative and support functions, and other special areas such as fraud audits. Prerequisite: Graduate standing and six hours of accounting.

**5335. DESIGN OF ACCOUNTING SYSTEMS (3-0).** A detailed study of the data entry, storage (file design), internal control, and reporting requirements of accounting systems, followed by the development of a significant accounting subsystem using a software development tool. Prerequisite: ACCT 5315 or equivalent.

**5339. TAX PLANNING AND RESEARCH (3-0).** A study of the use of various techniques and procedures available in evaluating issues arising under federal income tax law. Emphasizes research into individual and business tax problems and planning alternatives. Prerequisite: ACCT 5314 or equivalent.

**5340. STUDY OF FEDERAL INCOME TAX FOR ENTITIES OTHER THAN INDIVIDUALS (3-0).** Comprehensive analysis of the federal income tax consequences applicable to entities other than individuals. Analysis of the relevant tax principles of corporations, partnerships, trusts and estates will be undertaken. Cannot be taken for credit within the 36-hour program requirements for Master of Science in Taxation program. Prerequisite: ACCT 5314 or equivalent.

**5341. TAXATION OF PASSTHROUGH ENTITIES (3-0).** Analysis of the federal income tax rules governing passthrough entities. Prerequisites: ACCT 5314 and 5339 or equivalents.

**5342. TAX PROBLEMS OF CORPORATIONS AND SHAREHOLDERS (3-0).** Analysis of the federal income tax rules governing corporations and shareholders. Subjects include corporate formations, corporate capital structure, administrative requirements affecting corporations, the corporate alternative minimum tax, special tax provisions (such as the personal holding company and accumulated earnings taxes and the collapsible corporation rules), nonliquidating distributions, stock dividends, redemptions and partial liquidations, liquidating distributions, corporate reorganizations, and Subchapter S corporations. Prerequisite: ACCT 5314 or equivalent.

**5343. TAX PROBLEMS OF TRANSACTIONS IN REAL ESTATE (3-0).** Problems and elections relating to the acquisition, holding, and disposition of real property. Subjects include means of acquisition and disposition, capital gains and losses, deferred payment sales, organization of syndicates, sale and lease-back, dissolutions, and general tax-saving methods. Prerequisite: ACCT 5314 or equivalent.

**5345. STATE AND LOCAL TAXATION (3-0).** Introduction to the principles and practices of state and local taxation. Topics considered in the course include the application of both inter- and intra-state taxation, allocation and apportionment principles and issues in relation to the predominant forms of state taxes, such as franchise, sales, use, income, ad valorem, and property tax. Prerequisite: ACCT 5314 or equivalent.

**5346. TAX PRACTICE AND PROCEDURE (3-0).** This course overviews the procedural aspects of dealing with the Internal Revenue Service. The focus is from the private practitioner's perspective in assisting clients in navigating the Service's administrative requirements. Topics include administrative organization of the Service, tax audits, the use of Service administrative summonses, statutes of limitation, penalties, interest charges, civil and criminal procedures and appeals. Prerequisite: ACCT 5314 or equivalent.

**5347. FEDERAL TAXATION OF GIFTS AND ESTATES (3-0).** A comprehensive survey of the principles and procedures involved in determining the federal estate tax and the supplementary federal gift tax including taxability and valuation of property and the determination of deductions and credits. Prerequisite: ACCT 5314 or equivalent.

**5352. INFORMATION SYSTEMS AUDIT AND CONTROL (3-0).** A study of modern approaches to the audit and control of business information systems. Prerequisites: ACCT 5315 and 5316 or equivalents.

**5353. STATISTICAL TECHNIQUES USED IN ACCOUNTING (3-0).** A study of statistical techniques used in accounting. Topics include alternative sample selection methods, attribute methods, mean-per-unit estimation, ratio and difference estimation, monetary unit sampling, and regression analysis. Prerequisite: BUSA 5301 or an introductory course in statistics.

**5380. ETHICS IN ACCOUNTING (3-0).** This course is intended to introduce students to ethical reasoning, integrity, objectivity, independence, professionalism and other core values. The course incorporates the essentials of professional responsibilities, including elements of trust and communications with clients and other professionals. Both ethical principles and rules are considered. This course is intended to satisfy conditions of the Texas State Board of Public Accountancy that require candidates for the CPS Exam to have completed an approved ethics course.

**5382. INDEPENDENT STUDIES IN ACCOUNTING.** Extensive analysis of an accounting topic. Prerequisite: consent of faculty member and department chair.

**5392. SELECTED TOPICS IN ACCOUNTING.** In-depth study of selected topics in accounting. May be repeated when topics vary. Prerequisite: consent of instructor.

**5398, 5698. THESIS.** 5398 graded R/F only; 5698 graded P/F/R. Prerequisite: permission of Graduate Advisor.

**6101. ACCOUNTING RESEARCH COLLOQUIUM (1-0).** A forum in which visiting scholars and U.T. Arlington faculty members present and discuss results of their contemporary research. Doctoral students participate by meeting with visiting scholars, reading the research papers, providing written critiques, and discussing the papers. Doctoral students are required to enroll and attend the colloquia presentations each fall and spring semester until the students pass all their comprehensive examinations. May be repeated for credit. Graded P/F. Prerequisite: consent of Ph.D. advisor.

**6309. SEMINAR IN ACCOUNTING RESEARCH I (3-0).** Analysis of the theoretical and empirical literature in accounting. Prerequisite: consent of Graduate Advisor.

**6310. SEMINAR IN ACCOUNTING RESEARCH II (3-0).** Continuation of analysis of the theoretical and empirical literature in accounting. Prerequisites: ACCT 6309 and consent of the Graduate Advisor.

**6311. SEMINAR IN ACCOUNTING RESEARCH III (3-0).** Continuation of analysis of the theoretical and empirical literature in accounting. Prerequisites: ACCT 6310 and consent of the Graduate Advisor.

# Program in Business Administration

[www2.uta.edu/gradbiz](http://www2.uta.edu/gradbiz)

**Area of Study and Degrees**  
Business Administration  
M.B.A., Ph.D.

**Master's Degree Plan**  
Thesis and Non-Thesis

**Director of MBA Program**  
Mike West  
107 Business, 817-272-3004

**Director of Ph.D. Program**  
James Campbell Quick  
107 Business, 817-272-2522

## Graduate Faculty Professors

Amacher, Apilado, R. Baker,  
Dickinson, Diltz, Dunn, Gray,  
T. Hall, Himarios, McDaniel,  
Meiners, Munch, Panton, Price,  
Quick, Raja, Rasheed, Swanson,  
Taylor, Teng, Whiteside

## Associate Professors

Bell, Crowder, Depken, Duwaji,  
Eakin, Frazier, B. Hall, Ho, Mark,  
McConnell, McGee, McMahan,  
Peterson, Sarkar, Sikora, Slinkman,  
Tsay, Walther, Ward, Wheeler

## Assistant Professors

Benson, Butters, Cannon, Duffy,  
Gallo, Hansz, Henderson, Hyland,  
Kleiser, LaFountain, Lavelle,  
Mahapatra, Mosley-Matchett,  
Nerur, Payne, Prater, Song, Sonora,  
Subramaniam, Swafford, Wilson

## Objective: Master of Business Administration (MBA) Program

The Master of Business Administration program offers enhanced learning experiences that prepare leaders and managers for careers with all types of organizations. The faculty's research commitment and consulting rigor contribute to educational excellence. The community of shared knowledge leads to strategic partnerships that significantly enhance the nature of business education. A variety of MBA degrees and certificates are offered to serve a wide variety of interests.

Graduates from the programs are competent in the leadership of organizations and the cross-functional management of organizational resources. Competence is based on educational experiences that foster creative thinking, awareness of global opportunities, sound analytic decision making, strategic awareness, excellence in functional disciplines, and the internalized values of effective teamwork and leadership. The dedicated faculty and high quality career services assist each student in achieving their educational and career goals.

## Accreditation

The Master of Business Administration program is accredited by the AACSB International, the top accreditation body for business schools in the U.S.

## Admissions

Admission to the MBA program is based upon the completion of the general admission requirements of the Graduate School. For MBA program admission a score on the Graduate Management Admission Test (GMAT) and record of one's undergraduate academic performance are required. Students for whom English is not their native language must also achieve a TOEFL score of at least 550. International applicants that score below minimum acceptable levels on the verbal portion of entrance examinations may be admitted under the condition that they pass an English proficiency exam or complete U.T. Arlington's Graduate English Skills Program prior to beginning graduate coursework. Applicants are encouraged to submit with their application a resume that highlights professional and personal accomplishments, linguistic abilities, computer expertise and leadership experience. Applicants with two to five years of experience are preferred. A standardized test score (GMAT) will not be used as the sole criterion for denying an applicant's admission to the MBA program.

Specifically, multiple criteria are used to make admission decisions. Quantitative measures include an applicant's GMAT score and grade point average as calculated by the Graduate School. These measures are integrated into a formula, or index, that multiplies the grade point average by 200 and adds the total GMAT score. Index factors are weighed equally at the outset of applicant evaluation. A graduate grade point average is used in the index when it is 3.0 or above and is based on at least 24 semester hours.

Along with the grade point average and GMAT total score, admission criteria include the following:

1. GMAT sub scores (verbal and quantitative)
2. GMAT writing sample
3. Grades in specified undergraduate business and non-business courses (math, accounting, economics, statistics, for example)



4. Educational objectives and quality of written expression of the application essay
5. Letters of recommendation from three persons familiar with the applicant's academic background and/or work experience
6. Undergraduate major
7. General and specific program accreditation status of degree granting institution
8. Professional work experience
9. Professional certification or licensure

### Unconditional Admission

For unconditional admission, the applicant's composite total from the index must be 1080 or higher and items 1 through 5 above should strongly indicate potential for successful academic performance as a graduate business student.

Students who are unconditionally admitted, have a minimum undergraduate grade point average of 3.0 as calculated by the Graduate School (or 3.0 at the graduate level), and enroll for a minimum of six semester credit hours will be eligible for available fellowship and/or scholarship support. A standardized test score (GMAT) will not be used as the sole criterion for determining fellowship and/or scholarship eligibility.

### Probationary Admission

For an applicant with an index score below 1080 or an applicant who shows deficiency in one or more areas of items 1-9, probationary admission may be available when at least three items of 1 through 5 above strongly indicate potential for successful academic performance as a graduate business student. Items 6 through 9 will also be used to identify positive indicators for admission. Students who are admitted on probation will have one or more conditions specified, such as no grade less than 'B' for the first 12 hours of graduate study.

### Provisional, Deferred and Denied Admission

A provisional decision to admit may be granted when the applicant meets criteria for unconditional or probationary status but one or more applicant credentials are incomplete. A deferred decision may be made when an applicant's file is not sufficiently complete to make an admit or deny decision.

For an applicant with an index score less than 1040 and other evidence indicates lack of potential for academic success as a graduate business student, admission will likely be denied. However, all applicant data will be carefully reviewed before an admission denial is made.

### Non-Thesis Degree Requirements

The program is designed to accommodate both full-time and part-time students from widely divergent backgrounds. It is not necessary to have completed prior academic work in business administration. Core courses, which are an integral part of the program, are designed to prepare the student for advanced coursework. In order to accommodate the needs of fully employed professionals, the College of Business Administration offers a complete program in the evening and on Saturday. Most evening or Saturday classes are taught by full-time faculty members and the same academic standards required of full-time students are maintained. Students are expected to progress through the program at a pace that is commensurate with the time available.

### Waivers and Transfer Credit

There are three types of required courses: deficiency, core and advanced. Programs of work will normally vary in length from 36 to 48 hours (plus deficiency courses), depending upon waivers granted. The first two waivers of core courses will be used to expand the number of electives in the advanced program rather than shorten the overall program. Additional waivers of core courses may reduce the program to a minimum of 36 hours. Applicants may have both deficiency and core courses waived without the requirement for a substitute course if they have completed, during the last 10 years, a similar course at a recognized college or university and received a "B" or better grade.\* Extensions to this 10 year limit may be granted for managers and executives who have completed educational activities to remain current or have extensive related experience. Additionally, a maximum of 9 hours of advanced coursework may be transferred in from other AACSB accredited schools if approved by program advisor. Transfer of graduate classes from other universities will be considered on a case by case basis.

\* Note: The University of Texas at Arlington and The University of Texas at Austin offer Business Foundations Programs (BFP) for non-business majors that provide solid foundations in basic business concepts. BFP courses and courses from equivalent programs for non-business majors at other colleges/universities may not be used for course waiver credit.

### Deficiency Courses

Applicants are encouraged to complete deficiency requirements prior to applying or at the beginning of their studies. College courses in business math (including probability and set theory, linear equations, matrix algebra, compound interest, annuities, and differential and integral calculus), business statistics, and computers (including general topics, spreadsheets and word processing and electronic communications) may be taken prior to entry in the program. Students who are deficient in written and/or oral communication may be required to take ENGL 1301 and/or SPCH 1301 at U.T. Arlington after enrollment in the program.

### Core Courses

These courses should be taken upon entering the MBA program and prior to taking courses in the advanced part of the program. They may not be used as electives in the advanced program.

Accounting Analysis I (ACCT 5301)  
 Economic Analysis (ECON 5311)  
 Operations Management (OPMA 5361)  
 Marketing (MARK 5311)  
 Finance (FINA 5311)  
 Management (MANA 5312)

A student may enroll in up to nine hours of advanced courses when schedule conflicts prevent the prior completion of all the core courses. Under these circumstances, hours in excess of nine require advisor approval.

### Advanced Program

The advanced program provides each student the opportunity to tailor their studies to enhance their desired career opportunities. The careers program outlined below provides excellent support and advice to help the student choose an area of specialty and to select those electives that will build requisite career skills. Available specialties

include accounting, E-business, economics, finance, health care, information systems, international business, management, operations management, marketing, and real estate.

### Advanced Core Courses

Requirements for the advanced program include the following:

- BUSA 5325 Advanced Statistical Methods (first advanced course)
- BUSA 5330 or BUSA 5337 Legal Environment of Business or Ethics and the Business Environment
- ECON 5313 Managerial Economics\*
- ACCT 5302 Managerial Accounting\*

\* If relevant academic background is extensive enough in this subject area, the graduate advisor may allow the student to correspondingly expand the number of electives in the specialty or breadth area.

BUSA 5333 Strategic Management (Capstone course – must be taken in the last semester)

### Specialty and Breadth Electives

Students may take between nine and eighteen hours in a particular functional area and declare a specialty in that area. However, the advanced part of the program must have a minimum of six courses (18 semester hours) outside the area of specialty (five of these courses may be satisfied by the advanced core). Courses taken outside the area of specialty will be considered breadth electives.

### Selection of Electives (Specialty or Breadth)

Students should tailor their programs of work to develop skills and perspectives essential for business in the 21st century (see Planning a Program of Work). This should normally include approved electives in the following areas: international, technology, leadership/behavioral, and research. Individuals with strong backgrounds in these areas may choose other electives. Some breadth electives may be taken outside the Business College when the student has an academic background in that area or the electives are appropriate to the student's career goal, subject to approval of the graduate advisor.

### Thesis Degree Requirements

Requirements for the MBA thesis degree are the same as those for a non-thesis program with the following change. A six-hour thesis must be added to the normal 36 hour advanced MBA program. All candidates for this type degree shall defend the thesis at a final oral examination.

### Grade and Graduation Requirements

The MBA program follows the grade requirements for probation as specified under the general regulations of the Graduate School. In addition, students must have at least a 3.0 grade point average in all coursework and area of specialty (concentration) to graduate.

Students may be dismissed from the MBA program if they accumulate grade deficiency points greater than allowed. Any grade of C is worth one deficiency point, any grade of D is worth two deficiency points. Deficiency points may not be removed from a student's record by additional coursework.

The maximum allowable deficiency points will be computed by the advisor when the degree plan is prepared, modified or reviewed using the following guidelines:

Program Length (excluding transfer credit)	Allowable Deficiency Points
12 courses	2
13-17 courses	3
18 courses or more	4

### Planning a Program of Work

All students are encouraged to plan an advanced program of work early in their studies. The process begins with a brief "program planning session" conducted on a walk-in basis in the Graduate Business Services Office. The workshop provides important reference materials to assist students in preparing a preliminary advanced program of work and also provides an outline of the process for finalizing that program with the advisor. After approval, the program of work is entered into the College's CyberAdvising system, which allows students to access their approved program of work and allows permission to register by phone or online each semester for any approved course.

When planning a program of work, students may consider including several opportunities to enhance their career outcomes. Full-time students are encouraged to take advantage of the careers program outlined in the College portion of this catalog. The Careers and Managing in a Changing Environment (BUS4 5338) course provides opportunities for students to discover their own talents and abilities, identify appropriate careers, and explore marketplace opportunities. Such early career positioning allows students to focus their studies on those courses which will provide the most desirable skill sets. Additionally, students may select research topics and case presentations that will develop a strong industry awareness. Study abroad and internship opportunities also expand students' educational experiences on both a curricular and extracurricular basis. These special programs must be approved by a graduate advisor and included in the student's program of work.

Part-time students who are fully employed are encouraged to explore opportunities available in their organizations. Application of classroom information to the daily challenges faced in any business organization will expand students' education and career preparation. The career class (BUS4 5338) will assist working students in seeking greater opportunities in their organizations.

### Requirements for Electives

Students may take breadth electives in any of the curriculum areas of the MBA program. Students may take up to six semester hours in non-business coursework as part of their breadth electives, subject to the approval of the MBA Graduate Advisor.

A specialty in accounting requires a minimum of 12 semester hours beyond ACCT 5301 and ACCT 5302. Any four advanced accounting courses may be taken, however, it is recommended that the four courses be selected from the list below:

1. ACCT 5322 Accounting for Management Planning and Control
2. ACCT 5324 Financial Statement Analysis
3. ACCT 5330 International Accounting and Financial Reporting

## 4. Select one of the following:

- ACCT 5314 Principles of Federal Income Tax
- ACCT 5315 Accounting Systems Analysis
- ACCT 5317 Cost Accounting
- ACCT 5332 Operational Auditing

## International Business Option

The international business option (INBO) attracts students from every continent and provides a comprehensive program of challenging study in international business administration. In this option, students may have a traditional MBA specialty (see above) or may choose a broad program of study with no specialty. Generally a student must complete a minimum of 3-4 courses from the international courses listed below in order to be considered as having elected this option.

Students are encouraged to enrich their international education by participating for graduate credit in established foreign exchange programs in Australia, England, France, Germany, Korea, Mexico, and Norway, or by gaining approval to participate in unique study abroad programs offered by other AACSB accredited schools. Appropriate foreign language proficiency must be demonstrated before attending programs in France, Germany and Mexico or when required by study abroad programs. Students are encouraged to participate for academic credit in international business internships available in the Metroplex or overseas as part of an established exchange or study abroad program.

MBA students may further enhance their international skills by participating in the dual degree program with Thunderbird University. Under this program, students may earn both an MBA (UTA) and the Master of International Management (Thunderbird) degrees. This program normally allows students to apply 12 hours of advanced coursework and all core requirements towards both programs. Students wishing to participate may obtain detailed information about the program from the Graduate Business Services Office in the College of Business Administration. Students must independently apply and gain admission to both programs.

Students planning a career in the international field are encouraged to pursue internationally related research topics while taking approved research courses. Research topics may include conducting an area study (Latin American, African, Asian, European, etc.). Students should also recognize the importance of those graduate courses in political science and history, or additional courses in undergraduate foreign languages, which would embellish their graduate studies.

- ACCT 5330 International Accounting and Financial Reporting
- ACCT 5348 International Tax
- BUSA 5331 Law of International Business
- ECON 5319 Economic Analysis of International Business
- ECON 5321 International Trade and The Global Marketplace
- ECON 5327 International Finance and Open Economy Macroeconomics
- FINA 5331 Multinational Financial Management
- FINA 5332 Seminar in International Financial Markets
- MANA 5331 Management of International Operations
- MARK 5331 International Marketing

## Professional Management Electives

Students holding bachelor's or master's degrees in professional fields such as architecture, education, engineering, nursing, social work, and

urban studies have the option of taking, with advisor approval, up to 12 hours of approved breadth electives in their professional area as part of their MBA degree requirements. With these electives, professionals can develop advanced management skill in a functional area by declaring a 9-12 hour specialty, or pursue a more general management approach by declaring "no specialty."

## Graduate Certificate Program

### Graduate Advanced Studies Certificate

Individuals who hold a graduate degree in business and wish to pursue additional graduate studies in business solely for the purpose of professional development may apply to the Master of Business Administration Program as a special student. Applicants should outline their professional development objectives in their written essay that accompanies their application. Additionally, they must meet all requirements for admission to the MBA program. Coursework in this program must meet the grade requirements of the Graduate School and be completed within a three year time-limit. A certificate will be granted upon successful completion of 12-21 hours of approved coursework in an area of business. Executives completing courses from two or more areas will be awarded a certificate in the area of executive development. Managers or functional specialists completing courses in one area of study will be awarded a certificate for their professional development area. Some courses taken under this program may not be applied in the future toward another graduate degree at this University.

## Objective: Master of Business

### Administration Online (MBAO) Program

The MBA Online program in General Management provides today's students with the tools necessary to become leaders in the workplace of tomorrow. This challenging degree program pools the impressive resources and diverse perspectives of eight accredited University of Texas System institutions. Students will find a highly skilled, statewide team of professors presenting a broad, interactive curriculum. The program may be completed in as few as two or as many as six years.

Students apply for admission at any of the sponsoring institutions and receive their degrees from that university. To apply at The University of Texas at Arlington, students follow the same procedure required for the in-residence MBA (see the previous section titled Admissions). Applicants to the Online MBA program must specify on their application for admission that they are applying to the Online MBA program.

The Online MBA contains 16 courses (48 credit hours) all of which can be accessed entirely from remote locations. The program leads to an MBA with a specialty in General Management.

The program contains the following 16 courses:

- \*Accounting Analysis (UTD)
- \*Economic Analysis (UTD)
- \*Management (UTPA)
- Quantitative Analysis (UTSA)
- \*Marketing Management (UTPB)
- \*Financial Management (UTA)
- Research Methods (UTT)
- Information Systems for Managers (UTEP)
- Legal Environment in Business (UTB)

- \*Production and Operations Management (UTB)
- Contemporary Topics in Financial Management (UTPB)
- Accounting for Decision Making (UTSA)
- Human Resource Management (UTT)
- Leadership and Change (UTPA)
- Global Strategic Management (UTEPA)
- Business Policy (UTA)
- \*denotes Core Courses

Note: UTA denotes classes offered by The University of Texas at Arlington; UTB denotes classes offered by The University of Texas at Brownsville; UTD denotes classes offered by The University of Texas at Dallas; UTEP denotes classes offered by The University of Texas at El Paso; UTPA denotes classes offered by The University of Texas at Pan American; UTPB denotes classes offered by The University of Texas at Permian Basin; UTSA denotes classes offered by The University of Texas at San Antonio and UTT denotes classes offered by The University of Texas at Tyler.

Up to four core courses may be waived based upon recent academic coursework and satisfactory grades. Two additional courses may be waived based upon courses taken in residence at The University of Texas at Arlington. A minimum of 8 courses (24 credit hours) must be taken online. Waivers and transfer credit follow the same regulations as the in-residence MBA (see the previous section titled Waivers and Transfer Credit). For more information, visit the UT TeleCampus Web site: <http://www.telecampus.utssystem.edu/programs/MBA/mba.html>.

## Accelerated MBA (CMBA)

The accelerated MBA program is designed for professionals who are working full-time. In this 28-month, cohort-based program only one course is taken at a time, in accelerated 5-, 6-, or 7-week sessions. Students stay together as a "cohort" throughout all of their coursework.

This program is 48 semester hours for all students and follows the same general curriculum requirements as the regular MBA program. Since all students take the same set of courses, there are no concentration or specialty areas in this program.

## Executive MBA Program

The Executive MBA (EMBA) program is designed to provide high-quality graduate management education to mid-level and upper-level managers and executives. The program covers all functional areas of business management and exhibits several content integrating themes associated with successful management of modern business organizations, including project management, international operations, total quality management, and strategic resource alignment.

A cohort-based design with a lock-step, fixed curriculum and heavy emphasis on case studies are prominent features of the EMBA program. Students, who are usually fully employed and sponsored financially by their organizations, enter the program as a group of 30 to 40 and progress through courses together. The schedule of classes is non-traditional and utilizes weekend and accelerated formats. Course content is delivered by the best faculty using methods that maximize student interaction and high levels of knowledge transfer to students' job situations.

## Objective: Ph.D. in Business Administration

The objective of the Doctor of Philosophy in Business Administration degree is primarily to develop scholars with an ability to teach and conduct independent research in various areas of business administration. The program prepares students for careers as creative teachers and researchers by providing thorough preparation in both the theory and practice of business administration. The curriculum emphasizes and develops the rigorous analytical skills needed to make significant contributions in fields of business. Graduates of the program will assume significant roles in the world's educational and research institutions.

Coursework is offered in the following areas: accounting, banking and finance, business economics, business policy/strategic management, business statistics, personnel/human resource management, insurance and risk management, international business management, investments and securities, labor/industrial relations, management information systems, management sciences, marketing management and research, organizational behavior, organizational theory, production/operations management, real estate, small business management and ownership, and taxation. Coursework in these areas of study supports the following major fields: Accounting, Economics, Finance, Information Systems, Management, Marketing, and Operations Management.

## Admission

Admission to the Ph.D. program is based upon the completion of the general admission requirements of the Graduate School. For Ph.D. program admission a score on the Graduate Management Admission Test (GMAT) or Graduate Record Exam (GRE), and a record of undergraduate and masters academic performance are required. Students for whom English is not their native language must achieve a TOEFL score of at least 550. International applicants that score below minimum acceptable levels on the verbal portion of entrance examinations may be admitted under the condition that they pass an English proficiency exam or complete U.T. Arlington's Graduate English Skills Program prior to beginning graduate coursework. Applicants are encouraged to submit with their application a resume that highlights professional and personal accomplishments, linguistic abilities, computer expertise and leadership experience. A standardized test score (GMAT or GRE) will not be used as the sole criterion for denying an applicant's admission to the Ph.D. program.

Specifically, multiple criteria are used to make admission decisions. Quantitative measures include an applicant's GMAT or GRE score and grade point averages on undergraduate and masters level work as calculated by the Graduate School. No formula is used nor weights assigned to these factors. The Ph.D. Graduate Studies Committee and the field coordinator for the student's track in the Ph.D. program give consideration to these and other factors (educational objectives, letters of recommendation, etc.) in the entire file to arrive at a decision. Interviews with prospective students are encouraged and given consideration in the decision process. There are no set minimum scores for GMAT or GRE required for admission and no cutoff scores on grade point averages. Prospective students are encouraged to work with their track's field coordinator to work through the admission process.

## Categories of Admission Decisions

An applicant is unconditionally admitted when all factors for consideration indicate very strong potential for academic success as a business doctoral student. When multiple factors indicate lack of potential, admission will be denied. Probationary admission is not available for the doctoral program.

A provisional decision to admit may be granted when the applicant meets criteria for unconditional admission but an item of applicant information has not been received by the Graduate School. A deferred decision may be made when an applicant's file is not sufficiently complete to make an admit or deny decision.

## University and College Fellowship/Scholarship Awards

Doctoral students who are newly admitted, have a minimum undergraduate grade point average of 3.0 as calculated by the Graduate School (and 3.0 at the graduate level), and enroll for a minimum of six semester credit hours will be eligible for available fellowship and/or scholarship support. A standardized test score (GMAT or GRE) will not be used as the sole criterion for determining fellowship and/or scholarship eligibility.

## Degree Requirements

All students must complete work in three fields: a major (dissertation) field, a minor field, and a research field. A minor field may be external to the College of Business Administration. Examples are industrial engineering, mathematics, computer science, sociology, and psychology. The student must petition for approval of an external minor field.

The following minimum semester hours must be included in the student's Program of Study.

	Minimum Semester Hours
Business Foundation	*
Major Field	18**
Minor Field	12**
Research Field	15**
Dissertation	18

\*From 0-15 hours depending upon the student's background at the time of admission to the doctoral program.

\*\*Previous equivalent advanced coursework may be accepted.

## Residence Requirements

Each student enrolled in the doctoral program must enroll for and successfully complete a minimum of 15 hours in one 12-month period prior to completion of the comprehensive examinations. Each student must enroll for at least 12 hours every year. All students enrolled in the program must successfully complete all coursework and comprehensive examinations within a maximum of 60 months from initial enrollment in the program. A minimum of 24 graduate hours in residence, excluding dissertation, are required for all candidates.

## Diagnostic and Annual Performance Evaluations

All doctoral students are expected to show steady progress toward their degree and to demonstrate satisfactory advances in their ability and motivation to conduct independent research throughout their program. During a student's program, a diagnostic evaluation will be conducted near the end of the first year, but no later than 24 credit hours. After the first year, an annual performance evaluation will take place each subsequent year. The evaluation will be conducted by the major area Ph.D. advisor in consultation with a faculty committee. If the student has not yet passed all comprehensive examinations or does not have a formal dissertation committee, the faculty committee will consist of the faculty in the major area. If the student has passed all comprehensive examinations and has a formal dissertation committee, the faculty committee will consist of the Dissertation Committee.

Upon completion of the evaluation, a recommendation of continuation or discontinuation in the program is made to the College of Business Administration Ph.D. program director for a final decision. For a discontinuation decision resulting from the first year diagnostic evaluation, the student will immediately be discontinued in the Ph.D. program. For a discontinuation decision in the annual performance review in the second year and beyond, the student will have one regular semester (Fall or Spring) to demonstrate satisfactory improvement in their performance. At that time the major area Ph.D. advisor in consultation with the appropriate faculty committee, and the Ph.D. program director, will make a final decision on whether the improvements are satisfactory. An unsatisfactory decision at that time will result in the immediate discontinuation of the student in the program.

During the diagnostic and annual performance reviews, reasons for poor performance include: grade point averages below minimum GPA requirements, unsatisfactory progress in completing coursework, unsatisfactory progress in completing dissertation, and inadequate demonstration of ability and motivation to conduct independent research.

## Comprehensive Examinations

Students must demonstrate competence in their major, minor, and research fields by the successful completion of written examinations. Written comprehensive examinations in each field will be given at the start of each fall and spring semester of each year and may be given during the summer term. A student is eligible for a written comprehensive examination when that student has completed (1) the Business Foundation with a GPA of at least 3.25 and (2) prescribed coursework in the field. A research publication option may also satisfy the minor comprehensive examination.

If a student fails a written comprehensive examination and continues in that field, the examination must be retaken within a period of not more than 13 months. If a student fails a second comprehensive examination in a major or research field, that student will not be permitted to continue in the program. If a student twice fails a written comprehensive examination in a minor field, that student will not be permitted to continue in that field.

A student must complete all written examinations within 25 months or retake any examinations which fall outside the 25-month period.

When a student successfully completes all the written examinations, that student is scheduled for a comprehensive oral examination which is administered by the student's Supervisory Committee. A student who fails the comprehensive oral examination is given a second oral examination within 12 months of the date of the first examination. If a student fails the second comprehensive oral examination, that student will not be permitted to continue in the program.

Upon successful completion of written and oral comprehensive examinations, the student is admitted to candidacy.

## Dissertation

The Dissertation Committee consists of a minimum of five members. The chair of the Dissertation Committee must be from the major field. At least one member of the committee must be from the research field and one member of the committee must be from outside the major field. With the approval of the Graduate Dean, one of the five members may be a nationally or internationally recognized non-U.T. Arlington scholar.

Following completion of the comprehensive examinations, students will be required to enroll for at least nine hours of dissertation each regular semester and at least six hours each summer until completion of the dissertation. See Doctoral Requirements for Dissertations at the front of this catalog for exceptions. Students must register for a minimum total of 18 semester hours of dissertation and must be enrolled for a minimum of nine hours of dissertation in the semester in which they defend the dissertation.

The dissertation must be completed within four years of the oral comprehensive examination.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Business Administration (BUSA)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5301. STATISTICS (3-0).** Introduction to statistics, designed to prepare the student for quantitative analysis of business problems. Topics include probability, random variables, sampling distributions, confidence intervals, tests of hypotheses, multiple regression, analysis of variance, Bayesian

inference, and nonparametric methods. May not be counted as an MBA foundation course or elective. Prerequisite: MATH 1315.

**5303. QUANTITATIVE ANALYSIS (3-0).** Study of the methods of quantitative analysis used in business administration. Topics include matrix algebra, systems of linear equations, differential and integral calculus, linear programming, classical optimization, and a survey of management science models. Prerequisite: MATH 1315.

**5325. ADVANCED STATISTICAL METHODS (3-0).** Advanced topics in regression, correlation, experimental design, sampling methods, and other statistical methods with emphasis on their application to problems in the administration of operations. Prerequisite: BUSA 5301 or equivalent.

**5330. LEGAL ENVIRONMENT OF BUSINESS (3-0).** Study, in a conceptual framework, of the ideas and social and political forces that have led to changes in the business legal environment and legal institutions including current and historical developments affecting the business corporation. Legal framework and ethical problems of managers in serving diverse interests studied in connection with modern social legislation affecting business.

**5331. LAW OF INTERNATIONAL BUSINESS (3-0).** General principles of law applicable to international business including case law, statutory law, treaties, administrative law, and international agreements.

**5332. ENTREPRENEURSHIP AND ENTERPRISE DEVELOPMENT (3-0).** Venture formation and development process. Student-chosen entrepreneurial activities are planned including the preparation of a business plan for a proposed enterprise and, to the extent possible, execution of the business plan. Additional course activities will include guest speakers, "live" cases, entrepreneurial simulation and testing and selective case presentations by student teams. Prerequisite: Permission of the instructor and Graduate Advisor.

**5333. STRATEGIC MANAGEMENT (3-0).** Integration of the MBA curriculum into a cohesive whole. Treats the several elements of business administration by use of business policy cases and decision simulation methods. Satisfactory completion of this course fulfills the Comprehensive Examination requirement for MBA students. Prerequisite: must be taken in last semester or with permission of the Graduate Advisor.

**5334. REAL PROPERTY LAW (3-0).** Legal property theory underlying real estate transactions and relationships including estates and interests in land, conveyances, and mortgages.

**5337. ETHICS AND THE BUSINESS ENVIRONMENT (3-0).** Uses a strategic perspective to examine ethics, government and the world economy, and how they may affect relationships between business organizations and other institutions of our society. Particular attention is paid to issues such as leadership, technology, and internationalization—concordant with the breadth requirements of the UTA MBA—plus public policy concerns involving the natural environment, and gender and minority issues. Course activities will include class discussion and analysis of societal dilemmas, contemporary cases and current news stories.

**5338. CAREERS AND MANAGING IN A CHANGING ENVIRONMENT (3-0).** Presents practical and theoretical perspectives on careers and managing in a changing work environment. Includes self assessment, career plan development, informational interviews, readings and exercises designed to lead to a better understanding of managing self and others.

**5375. ADVANCED BUSINESS COMMUNICATION THEORY AND PRACTICE (3-0).** Examines theory of effective oral and written

communication. Discusses techniques for improved research, report writing and presentation. Also stresses presentation media and computer graphics for reports and presentations.

**5379. ORGANIZATIONAL RESEARCH PROJECT (3-0).** This course is restricted to Cohort MBA students only. Students conduct a research project at a local organization, focusing on applications of business concepts studied in their coursework.

**5389, 5689, 5989. INDEPENDENT STUDIES IN MILITARY ACQUISITION.** This course is reserved for military officers in the Training with Industry or I-Grad programs at U.T. Arlington. Studies consist of an acquisition practicum with training at an assigned agency and a required seminar at U.T. Arlington.

**5398, 5698. THESIS.** 5398 graded R/F only; 5698 graded P/F/R. Prerequisites: BUSA 5325 and approval of Graduate Advisor.

**5199, 5299, 5399. GRADUATE INTERNSHIP.** Practical training in business and industry. Analysis of theory applied to real life situations. Course counts as an elective and has a pass/fail grade. No credit will be given for previous experience or activities. Prerequisites: Minimum nine graduate semester hours completed.

## UT TeleCampus Online MBA (MBAO)

**6311. ACCOUNTING ANALYSIS (U.T. Dallas).** The course is designed for managers who will use, not prepare, accounting information. It consists of 3 modules: Financial Accounting, Cost Management and Management Control.

**6312. ECONOMIC ANALYSIS (U.T. Dallas).** The emphasis of this course will be on fundamental aspects of economic analysis relating to individual firms and individual markets. The student will learn the impact of demand, how firms choose prices, the role of costs, the nature of competition and monopoly, the role of property rights, simple network economics, and basic antitrust. Although not heavily used in the course, some reference will be made to calculus.

**6313. MANAGEMENT (U.T. Pan American).** An analysis of formal organizational theory and the interrelationship of individuals in organizations. A study of the organization as a system of authority, status, leadership, direction, culture, ethics, communication and influence.

**6314. QUANTITATIVE ANALYSIS IN BUSINESS (U.T. San Antonio).** Introduction to managerial decision analysis using quantitative tools. Topics include a general framework for decision analysis, decision tables and trees, simulation, linear programming and related techniques, classical optimization, forecasting, and probabilistic and statistical techniques. Uses applicable decision support software. Emphasis is on applications. No textbook is required. All course materials will be provided to the students.

**6315. MARKETING MANAGEMENT (U.T. Permian Basin).** An overview of the theory and practice of marketing. Study of the impact of organization structures and processes on the performance of organizational members. The practice of analytic and decision-making skills will be emphasized.

**6316. FINANCIAL MANAGEMENT (U.T. Arlington).** The study of providing an organization with operating funds and effectively utilizing monetary resources. Primary emphasis on financial decision making within organizations and techniques of financial analysis and forecasting.

**6331. RESEARCH METHODS (U.T. Tyler).** The application of research techniques to business decision making. Study of the scientific

method: definition of survey, development of methodology, evaluation of alternatives, findings, summary, conclusions and recommendations.

**6332. INFORMATION SYSTEMS FOR MANAGERS (U.T. El Paso).** This course will look at technology at a macro level. Each module examines the impact of today's information systems on organizations, education, government, culture, society, and the future.

**6333. LEGAL ENVIRONMENT IN BUSINESS (U.T. Brownsville).** The course will introduce the student to fundamental legal issues confronting managers in the contemporary American and global legal environment.

**6334. PRODUCTION AND OPERATIONS MANAGEMENT (U.T. Brownsville).** The study of the role of the production function in the business system and its relationship to marketing and finance. The focus is on the decision making necessary for productivity improvement in the transformation process of manufacturing and non-manufacturing service organizations. Strategies of production system design, capacity management, quality management, production planning, inventory planning and control, facility location and supply chain management are explored. Systems studied include Just-in-Time, Total Quality Management and Flexible Manufacturing Systems.

**6335. CONTEMPORARY TOPICS IN FINANCIAL MANAGEMENT (U.T. Permian Basin).** The study of topics recently published in financial management literature. The topics will be selected from international, corporate, risk management topics and vary from term to term.

**6336. ACCOUNTING FOR DECISION MAKING (U.T. San Antonio).** An online version of ACC 5023, Accounting Analysis for Decision Making, which is a required course in the resident MBA program in the College of Business at the University of Texas at San Antonio. Prerequisite: 6311 Accounting Analysis or its equivalent.

**6371. HUMAN RESOURCE MANAGEMENT (U.T. Tyler).** Advanced study of selected topics in human resource management with special emphasis on issues of current importance in the field. Topic areas in such human resource functions as staffing, development, appraisal, and compensation will be covered.

**6372. ORGANIZATIONAL LEADERSHIP AND CHANGE (U.T. Pan American).** This course is designed to provide a broad overview of Leadership and Organizational change theories, practices, and research. Special attention will be given to critical thinking skills and the students' ability to communicate and lead effectively in the discussion chat room format.

**6373. GLOBAL STRATEGIC MANAGEMENT (U.T. El Paso).** Participants will be able to perform environmental scanning through the understanding of the elements of corporate, competitive and operational environments. Participants will be exposed to different tools for evaluation of opportunities and threats and for identifying sources of strategy. Students will have "hands-on" experience through a computer simulation. This simulation will provide participants the experience of working in teams. Teams will make competitive decisions about a global organization

**6395. BUSINESS POLICY (U.T. Arlington).** The primary thrust of this course is general management. It will be different from most of the courses you have had in the functional areas (e.g. accounting, marketing) because you will be required to use a wide range of business knowledge and exhibit diverse skills. Therefore, it will be demanding and challenging because you will have to perform in topic areas where you have both strengths and weaknesses.

## Doctoral Courses (BSAD)

**6310. FOUNDATIONS OF SCIENTIFIC INQUIRY (3-0).** The evolution of the modern corporation is briefly addressed. The core topics include the structure of explanation, the structure of scientific laws, theory building, philosophy of science and relativistic/post-relativistic philosophies of science.

**6311. EXPERIMENTAL DESIGN (3-0).** In-depth coverage of selected topics in the design of research and analysis of data; topics include philosophy of science, theory of measurement, complex experimental and quasi-experimental designs.

**6312. REGRESSION (3-0).** The theoretical and practical aspects of regression analysis. Topics include simple and multiple linear regression, the matrix formulation of regression models, regression diagnostics and remedial measures, collinearity and ridge regression, normal correlation models, and non-linear least squares, time series including ARIMA models are covered. Practical applications of statistical software packages are emphasized. Prerequisite: BUSA 5325 or equivalent.

**6313. ANOVA (3-0).** Experimental design and data analysis, especially as related to business and economic research. Topics include completely randomized designs, complete and incomplete blocks, nested designs, estimation and testing of fixed, random and mixed effects, sampling, nonparametric statistics and analysis of variance. Prerequisites: BUSA 5325 or MANA 5329 or equivalent.

**6314. MULTIVARIATE STATISTICS (3-0).** Focuses on methods of analyzing mean and covariance structures. Topics include commonly applied multivariate methods such as multiple analysis of variance, repeated measures, discriminant analysis, profile analysis, canonical correlations and factor analytic methods. The use of matrix algebra and available computer packages will be stressed. Prerequisite: BUSA 5325.

**6315. TIME SERIES (3-0).** Univariate and multivariate time series; analysis of economic and financial data; out-of-sample forecasting using computer software. Autoregressive-moving average models, vector autoregression, unit roots, co-integration, ARCH and GARCH. Prerequisite: BUSA 5301 or equivalent.

**6316. FINANCIAL ECONOMETRICS (3-0).** In-depth study of the econometric tools and techniques used in empirical finance research. Course emphasizes data extraction and analysis of common finance databases, as well as the theoretical basis for current empirical finance techniques and methods.

**6317. ECONOMETRICS (3-0).** Statistical methods applied to business and economic problems; topics include multiple regression, generalized linear regression, systems estimation. Prerequisites: ECON 5301, BUSA 5301 or equivalent.

**6392. DOCTORAL RESEARCH AND TEACHING COLLOQUIUM (3-0).** Review of the research process and contemporary developments in the methodology and design of empirical research in the major fields of study represented in the doctoral program. Review of teaching methods for effective classroom instruction. May be repeated for credit.

**6399, 6699, 6999. DISSERTATION.** 6399, 6699 graded R/F; 6999 graded P/F/R.

For all other graduate courses, see course listings for the following departments: Accounting, Economics, Finance and Real Estate, Information Systems and Operations Management, Management and Marketing. If a course is not approved for the MBA or Ph.D. program, a statement to that effect is included in its course description. 6000-level courses may not be taken without the permission of the major field coordinator or the Director of the Doctoral Program.



## Objective

The Master of Arts is an applied economics program. As a "terminal" degree program, it teaches marketable skills for employment in business or government. The program consists of a solid analytical core in economics and quantitative methods, supplemented with courses in special fields. Potential specialization areas currently emphasized are forecasting/quantitative techniques, international business economics and applied financial economics. The program is also recognized nationally for preparing students who want to pursue the Ph.D. degree in economics.

Economics is one of the areas a student may choose to study in the Doctor of Philosophy in Business Administration program. Additional information concerning the doctoral program is presented in the catalog under the heading Business Administration.

## Admission Requirements

Admission to the M.A. program in economics is based upon the completion of the general admission requirements of the Graduate School. For admission to the M.A. program in economics, a score on either the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE) and record of one's academic undergraduate performance are required. Students for whom English is not their native language must achieve a TOEFL score of at least 550 (213 on computer-based test). International applicants who score below minimum acceptable levels on the verbal portion of entrance examinations may be admitted under the condition that they pass an English proficiency exam or complete U.T. Arlington's Graduate English Skills Program prior to beginning graduate coursework. Applicants are encouraged to submit with their application a resume that highlights professional and personal accomplishments, linguistic abilities, computer expertise and leadership experience. A standardized test score (GMAT or GRE) will not be used as the sole criterion for denying an applicant's admission to the M.A. program in economics.

Multiple criteria are used to make admission decisions. Unconditional acceptance is based on consideration of all the information listed below and the decision to deny admission is not based on any single criterion alone.

1. A bachelor's degree from an accredited general or specific program.
2. An acceptable undergraduate GPA as calculated by the Graduate School, generally greater than a 3.0 on a 4.0 scale.
3. An acceptable score on the Graduate Record Examination or GMAT. Successful students generally have a minimum score of 600 on the Quantitative section and 450 on the Verbal section of the GRE or a minimum score of 480 on the GMAT.
4. Favorable letters of recommendation from at least three individuals able to assess the applicant's potential success in graduate school.
5. Grades in specified undergraduate business and non-business courses (e.g., math, accounting, economics, statistics).
6. For applicants whose native language is not English, a minimum score of 550 on the Test of English as a Foreign Language (or an equivalent score on a computer-based test) or a score of 40 on the Test of Spoken English.

## Department of Economics

<http://economics.uta.edu>

### Areas of Study and Degrees Economics

M.A.

Business Administration

M.B.A., Ph.D.

(See Program in Business Administration)

### Master's Degree Plans

Thesis and Non-Thesis

### Chair

Daniel Himarios

309-C Business, 817-272-3061

### Graduate Advisor

C.A. Depken, II

329 Business, 817-272-3290

### Graduate Faculty

#### Professors

Amacher, Himarios, Meiners

#### Associate Professors

Crowder, Depken, Ward

#### Assistant Professors

Butters, LaFountain, Sonora, Wilson

Regardless of a student's score on the GRE or GMAT, he or she may be considered for unconditional admission if further review of the undergraduate transcript, recommended letters, correspondence or direct interactions with Economics faculty, and statement of professional research interests indicates that he or she is qualified to enter the Masters Program.

### Probationary Admission

If an applicant does not meet items 1 through 6 for unconditional admission, they may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in the first 12 hours of graduate coursework at U.T. Arlington.

### Deferred and Provisional Admission

A deferred application decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

### Denial of Admission

A candidate may be denied admission if he or she has less than satisfactory performance on a majority of the admission criteria.

### Fellowships and Scholarships

Students admitted with no provisional conditions to satisfy are eligible for available scholarship and/or fellowship support. A limited number of merit-based scholarships and fellowships may be awarded to graduate students enrolled in a minimum of 6 hours of coursework in both long semesters.

## Degree Requirements

### Master's Degree with Thesis

A minimum of 30 semester hours is required. The core requirement is ECON 5301 or equivalent, 5310, 5312, 5336, and the thesis (for which a six-hour credit is received). Six hours of electives in economics must be chosen. The remaining six hours of electives may be a combination of courses in economics or in a minor field. A maximum of nine hours of advanced undergraduate courses may be taken for graduate credit, with the approval of the Graduate Advisor. Not more than six hours of such courses may be in either the major or the minor field.

### Master's Degree, Non-Thesis

The non-thesis degree option is designed for students who will enter the job market upon completion of the M.A. degree in economics. This degree plan requires a minimum of 36 semester hours, including a core of ECON 5301 or equivalent, 5310, 5312, 5336 and 5329. The total may include up to 12 semester hours in supporting subjects with the approval of the Graduate Advisor. A maximum of nine semester hours of advanced undergraduate work may be taken for graduate credit, with the approval of the Graduate Advisor. Successful completion of ECON 5329 satisfies the Graduate School requirement of a final master's examination.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Economics (ECON)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5301. MATHEMATICS FOR ECONOMISTS (3-0).** Designed to upgrade mathematical skills for graduate work in economics and business. Prerequisite: college algebra or equivalent.

**5305. ENVIRONMENTAL LAW & POLICY (3-0).** Evolution of environmental law and policy; reviews primary environmental laws; Clean Air Act, Clean Water Act, Superfund, RCRA, and Endangered Species Act and their impact on the economy and environment.

**5306. ENVIRONMENTAL ECONOMICS (3-0).** This course examines economic theory and practice as it applies to environmental regulation, policy, and management. Prerequisite: ECON 5311 or equivalent.

**5310. MICROECONOMIC THEORY (3-0).** Theories of consumer choice and of the firm; marginal productivity and functional distribution; general equilibrium of production, consumption, and exchange. Prerequisite: ECON 3310 or equivalent or consent of instructor.

**5311. ECONOMIC ANALYSIS (3-0).** Provides an overview of microeconomic foundations of economic analysis with a focus on business applications. Topics include supply and demand, marginal analysis, pricing issues and theory of the firm. An overview of macroeconomics is also provided, covering monetary and fiscal policy, inflation, growth and international trade. Non-credit for MA in Economics.

**5312. MACROECONOMIC THEORY (3-0).** Study of the aggregate approach to the economy and the tools of analysis used for the solving of national economic problems. Prerequisite: ECON 3312 or equivalent or consent of instructor.

**5313. MANAGERIAL ECONOMICS (3-0).** Application of economic analysis in formulating business decisions, drawing upon the theoretical foundations of the concepts of demand, cost, production, profits, and competition, with special emphasis on case studies. Prerequisite: ECON 5311 or equivalent or consent of instructor.

**5314. ECONOMICS OF ORGANIZATION AND BUSINESS STRATEGY (3-0).** Economic theories of firm and industry behavior include the organization of the firm, oligopoly behavior, strategic behavior, mergers and acquisitions, and technological competition. Prerequisite: ECON 5311 or equivalent.

**5315. ECONOMICS OF TECHNOLOGY AND INNOVATION (3-0).** Examines technology and innovation using the tools of microeconomics. Analyzes the effects of technology on industrial market structure, firms' strategies and public policy. Topics include determinants of innovation, industry evolution, managing firm boundaries, intellectual property and managing technological processes. A substantial amount of time will focus on modern industries including telecommunications, e-commerce, software, entertainment, pharmaceuticals and biotechnology. Prerequisite: ECON 5310, 5311 or 5313.

**5318. ECONOMICS OF SPORTS (3-0).** Applies basic economic principles to the analysis of professional and amateur sports. Topics covered include fan demand, advertising, team output decisions, league/conference organization, and government and sports. The course is designed to cater to both general business and economics majors. Prerequisite: Consent of instructor.

**5319. THE GLOBAL ECONOMY (3-0).** Study of growing global economic integration. Tools are developed to undertake a critical examination of integration from both the international trade and international finance sides. Topics include the movement towards increasing free trade and free trade areas, trade and government policy harmonization, exchange rate policy, single currency areas, and positive and negative spillover effects of short- and long-run economic changes. Special attention will be paid to free trade areas such as NAFTA, economic unions such as the European economic area, and the costs inherent in increased economic integration, e.g., the Southeast Asian Crisis. Prerequisite: ECON 5311 or equivalent.

**5321. INTERNATIONAL TRADE AND THE GLOBAL MARKETPLACE (3-0).** Examines the theory and policy of international trade and public policy. The theory portion explains the causal factors that determine the size, composition, and direction of international economic transactions. Special attention is paid to the theory of economic integration and its direct application to the EU, NAFTA, and other economic blocs. The policy portion studies the role of governments in their efforts to regulate, restrict, promote, or influence the conduct of international trade and investment. Prerequisite: ECON 5311 or equivalent.

**5327. INTERNATIONAL FINANCE AND OPEN ECONOMY MACROECONOMICS (3-0).** Study of international money and capital markets. Determination of output, balance-of-payments and exchange rates under different monetary and exchange rate regimes. Exchange rate intervention by central banks and exchange rate systems in developing countries are also discussed. Prerequisite: ECON 5311 or equivalent.

**5329. RESEARCH METHODS IN APPLIED ECONOMICS (3-0).** Research problems and methods most commonly encountered by economists in industry and government; specific research projects required in applied areas such as corporate planning, utility rate analysis, manpower planning, micro- and macro-forecasting, etc.; emphasis on practical research methods and on the presentation of results in coherent written reports. Prerequisites: ECON 5310, 5312, and 5336.

**5330. ADVANCED LABOR ECONOMICS (3-0).** Economic analysis of the supply of labor, the allocation of labor among alternative uses, investment in human capital, the extent and incidence of unemployment, and the determination of wages. Prerequisite: ECON 5311 or equivalent.

**5331. URBAN ECONOMICS (3-0).** Develops the modern analysis of urban problems and goals with special attention given to those factors that influence the economic development of urban communities and the quality of urban life. Attention is also given to policy

formulation as a means for urban problem solving. Prerequisite: ECON 5311.

**5332. GOVERNMENT, TAXES AND BUSINESS STRATEGY (3-0).** The interaction between government and business is broad. Effective business leadership requires the ability to analyze and respond to public policy. Economics provides a framework for understanding the incentives of consumers, businesses, bureaucrats and civil servants in different policy environments and predicting their behavior in response to policy changes. This course focuses primarily on tax policy at the federal, state and local levels, including issues in corporate taxation, personal income tax, treatment of capital gains and losses, tax incidence, work-leisure choices, fiscal competition among state and local governments, capital flight and fiscal federalism. Prerequisite: ECON 5311.

**5333. ECONOMICS OF HEALTH (3-0).** Employment of economic theory to analyze the health sector and consider problems such as rising prices and maldistribution of resources. Topics include methods of policy evaluation, impact of prospective payment and managed care, productivity, determinants of health. Prerequisite: ECON 5311 or equivalent.

**5336. ECONOMETRICS (3-0).** Statistical methods applied to business and economic problems; topics include simple regression, multiple regression, heteroskedasticity, autocorrelation, data measurement, functional forms, generalized linear regression, seemingly unrelated regressions and systems estimation. Prerequisites: ECON 5301, BUSA 5301, or equivalent.

**5337. BUSINESS & ECONOMIC FORECASTING (3-0).** Econometric model-building and forecasting with applications to business and economics. Single equation models, multiple equation models, and time-series models are covered with emphasis on practical problems in analysis and forecasting. Prerequisite: BUSA 5301 or equivalent.

**5338. MODERN APPLIED TIME SERIES (3-0).** Univariate and multivariate time series, analysis of economic and financial data, out-of-sample forecasting using computer software. Autoregressive-moving average models, vector autoregression, unit roots, co-integration, ARCH and GARCH. Prerequisite: ECON 5336 or equivalent or consent of instructor.

**5382. INDEPENDENT STUDIES IN ECONOMICS.** Extensive analysis of an economic topic. Prerequisite: consent of instructor and department chair.

**5391. SPECIAL TOPICS IN ECONOMICS (3-0).** In-depth study of selected topics in economics. May be repeated when topics vary. Prerequisite: consent of instructor.

**5398, 5698, or 5998. THESIS.** 5398 graded R/F only; 5698 and 5998 graded P/F/R. Prerequisite: permission of Graduate Advisor in economics.

**6310. ADVANCED MICROECONOMIC THEORY (3-0).** Investigates the advanced neoclassical theory of microeconomics. The course develops formal models of consumer behavior, market structure, general equilibrium and welfare. The objective of the course is to acquaint students with the analytical tools necessary to evaluate the formal literature in economics and to conduct scientific, hypothesis-driven statistical studies. Prerequisites: ECON 5301 and 5310.

**6312. ADVANCED MACROECONOMIC THEORY (3-0).** Topics include dynamic general equilibrium analysis of model economies, monetary theory in overlapping generations models, advanced growth theory and new open-economy macroeconomics. Prerequisites: ECON 5301 and 5312.

# Department of Finance and Real Estate

[www.uta.edu/finance](http://www.uta.edu/finance)

[www.uta.edu/realstate](http://www.uta.edu/realstate)

## Areas of Study and Degrees

### Real Estate

M.S.

Graduate Certificate in Real Estate Development

### Business Administration

M.B.A., Ph.D.

(See Program in Business Administration)

## Master's Degree Plans

Thesis and Non-Thesis

### Chair

J. David Diltz

434 Business, 817-272-3705

### Graduate Advisors

M.S. Real Estate

Graduate Certificate in Real Estate Development

Matthew L. Cypher

434 Business, 817-272-3705

MBA - Finance

MBA - Real Estate

Mike West

107 Business, 817-272-3005

### Ph.D. Coordinator

Salil K. Sarkar

434 Business, 817-272-3705

### Graduate Faculty

Professors

Apilado, Diltz, Panton, Swanson

Associate Professor

Sarkar

Assistant Professors

Gallo, Hansz, Sabherwal

## M.S. in Real Estate Objective

The Department of Finance and Real Estate participates in several graduate degree programs including the Ph.D. in Business Administration, the Master of Business Administration and the Master of Science in Real Estate. In the Ph.D. in Business Administration courses in finance and real estate prepare students for careers in teaching, research, business, and government. Concentrations in both finance and real estate are offered in the M.B.A. program (see Interdepartmental and Intercampus Programs for degree requirements). The M.S. in Real Estate provides students in-depth training in real estate decision making.

The purpose of the Master of Science in Real Estate degree program is to provide students an opportunity to obtain a better understanding of the mechanics of real estate decision making in modern society and a greater depth of training in the discipline of real estate decision making than is possible at the baccalaureate level. The specific objectives of the program are to prepare students for careers in business, government, research, and teaching and for further graduate study. In this program, students are exposed to the theory, research, and practical applications of numerous real estate content areas, including investment analysis, appraisal, real estate development, primary and secondary mortgage markets, and mortgage backed securities. The Master of Science in Real Estate degree program is a specialized degree program designed to build upon the candidate's prior background.

## Accreditation

The Master of Science in Real Estate is accredited by the AACSB—The International Association for Management Education.

## Admission

Admission to the M.S. in Real Estate (MSRE) program is based upon the completion of the general admission requirements of the Graduate School. For MSRE program admission a score on the Graduate Management Admission Test (GMAT) and record of one's undergraduate academic performance are required. Students for whom English is not their native language must also achieve a TOEFL score of at least 550. International applicants that score below minimum acceptable levels on the verbal portion of entrance examinations may be admitted under the condition that they pass an English proficiency exam or complete U.T. Arlington's Graduate English Skills Program prior to beginning graduate coursework. Applicants are encouraged to submit with their application a resume that highlights professional and personal accomplishments, linguistic abilities, computer expertise and leadership experience. A standardized test score (GMAT) will not be used as the sole criterion for denying an applicant's admission to the MSRE program.

Specifically, multiple criteria are used to make admission decisions. Quantitative measures include an applicant's GMAT score and grade point average as calculated by the Graduate School. These measures are integrated into a formula, or index, that multiplies the grade point average by 200 and adds the total GMAT score. Index factors are weighed equally at the outset of applicant evaluation. A graduate grade point average is used in the index when it is 3.0 or above and is based on at least 24 semester hours.

Along with grade point average and GMAT total score, admission criteria include the following:

1. GMAT sub scores (verbal and quantitative)
2. GMAT writing sample

3. Grades in specified undergraduate business and non-business courses (math, accounting, economics, statistics, for example)
4. Educational objectives and quality of written expression of the application essay
5. Letters of recommendation from three persons familiar with the applicant's academic background and/or work experience
6. Undergraduate major
7. General and specific program accreditation status of degree granting institution
8. Professional work experience
9. Professional certification or licensure

### Unconditional Admission

For unconditional admission, the applicant's composite total form the index must be 1080 or higher and items 1 through 5 above should strongly indicate potential for successful academic performance as a graduate real estate student.

Students who are unconditionally admitted, have a minimum undergraduate grade point average of 3.0 as calculated by the Graduate School (or 3.0 at the graduate level), and enroll for a minimum of six semester credit hours will be eligible for available fellowship and/or scholarship support. A standardized test score (GMAT) will not be used as the sole criterion for determining fellowship and/or scholarship eligibility.

### Probationary Admission

For an applicant with an index score below 1080, probationary admission may be available when at least three items of 1 through 5 above strongly indicate potential for successful academic performance as a graduate real estate student. Items 6 through 9 will also be used to identify positive indicators for admission. Students who are admitted on probation will have one or more conditions specified, such as no grade less than 'B' for the first 12 hours of graduate study.

### Provisional, Deferred and Denied Admission

A provisional decision to admit may be granted when the applicant meets criteria for unconditional or probationary status but one or more applicant credentials are incomplete. A deferred decision may be made when an applicant's file is not sufficiently complete to make a final admission decision.

For an applicant with an index score less than 1040 and at least three items of 1 through 5 indicate lack of potential for academic success as a graduate real estate student, admission will likely be denied. However, all applicant data will be carefully reviewed before an admission denial is made.

### Waiver of GMAT Score for Graduate Certificate in Real Estate Development Students

Students who successfully complete the Graduate Certificate in Real Estate Development with a GPA of 3.5 or higher will, upon the recommendation of the Graduate Advisor and the Dean of Graduate Studies, be granted a waiver of the GMAT requirement for their application to the Master of Science in Real Estate program.

### Degree Requirements

The program, which can be completed by part-time students who attend classes during the late afternoon and evening hours, is designed to accommodate students with divergent educational backgrounds and career interests. Each student's program of work must be approved by the Real Estate Graduate Advisor and it must contain a minimum of

15 semester hours in approved advanced graduate real estate courses taken at The University of Texas at Arlington.

A minimum of 30 semester hours is required if the student chooses to write a thesis. If the student chooses not to write a thesis, a minimum of 36 semester hours is required. All classes must be approved by the Graduate Advisor in Real Estate. Students who do not have a bachelor's degree in business administration may have to take additional coursework (up to 9 semester hours) to acquire a sufficient general business foundation. Students may have foundation courses waived by the Graduate Advisor if they have completed equivalent courses.

For the students who choose to write a thesis, the six hours of thesis will involve working closely with one or more members of the graduate faculty from the Department of Finance and Real Estate on a research project in a specialized area of interest in real estate.

The required foundation courses include:

ACCT 5301 Accounting Analysis I  
ECON 5311 Economic Analysis  
FINA 5311 Business Financial Management

The required advanced courses include:

REAE 5311 Real Estate Analysis  
REAE 5321 Seminar in Real Estate Investment  
REAE 5334 Seminar in Real Estate Appraisal  
REAE 5319 Seminar in Real Estate Finance (integrated project course)

**Thesis Option**

REAE 5698 Thesis

**Non-Thesis Option** (Three of the following courses)

REAE 5314 Seminar in Real Estate Development  
REAE 5392 Selected Topics in Real Estate  
REAE 5327 Advanced Real Estate Market Analysis  
REAE 5350 Quantitative Methods for Real Estate

Examples of advanced elective courses:

(Nine semester hours are required for the thesis option and 15 semester hours are required for the non-thesis option.)

FINA 5330 Corporate Finance  
FINA 5334 Financial Institutions and Markets  
FINA 5323 Investments  
FINA 5329 Portfolio and Security Analysis  
BUSA 5334 Real Property Law  
INSY 5335 Applied Database Management

Examples of courses in supporting fields (six semester hours):

CIRP 5305 Land Use, Management, and Development  
CIRP 5322 Urban and Regional Economic Development  
URBA 5330 Urban and Regional Planning  
URBA 5331 Urban Design  
ARCH 5333 Construction Methods and Estimating  
ARCH 5334 Construction Management  
MASI 5330 Nonparametric Statistics  
MASI 6302 Applied Linear Statistical Models I  
ECON 5312 Macroeconomic Theory  
ECON 5337 Business and Economic Forecasting

The six hours of thesis work must be conducted under the supervision of one of the members of the Graduate Studies Committee for the Master of Science in Real Estate Program.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Graduate Certificate in Real Estate Development

### Objective

In keeping with the mission of The University of Texas at Arlington to provide lifelong learning opportunities, the Department of Finance and Real Estate now offers a Graduate Certificate in Real Estate Development. The Graduate Certificate in Real Estate Development is designed to provide qualified real estate professionals advanced instruction in real estate development and allow them to further their professional development. This post-baccalaureate Certificate provides an educational opportunity that is narrower in scope, and shorter in duration, than graduate degree programs. It is ideal for people transitioning from one sector of real estate into real estate development, or those in the process of satisfying education requirements for various professional real estate licenses.

### Admission

Admissions to the Graduate Certificate in Real Estate Development is based upon the general admission requirements of the graduate school. Generally applicants must have an undergraduate grade point average of at least 2.6 as calculated by the Graduate School. A graduate grade point average is used when the applicant has attained at least 24 graduate semester hours.

Applicants whose undergraduate GPA was less than a 2.6 may still be admitted to the Graduate Certificate in Real Estate Development program by meeting the admissions requirements for the M.S. Real Estate program.

### Course Requirements

The Graduate Certificate in Real Estate Development requires students to take and to complete with a minimum GPA of 3.0, four "Advanced" real estate courses. Those students entering the Certificate Program without having taken the equivalent of three undergraduate real estate courses will also be required to take a "Foundation" course, REAE 5311. The structure of the program is:

#### Foundation Course

REAE 5311 Real Estate Analysis

#### Required Courses

REAE 5314 Real Estate Development  
REAE 5321 Real Estate Investments

#### Elective Courses - Students must take two of the following:

REAE 5319 Real Estate Finance  
REAE 5334 Real Estate Appraisal  
REAE 5392 Special Topics in Real Estate

#### Use of Courses toward Degree Program

Students that initially enroll in the Graduate Certificate in Real Estate Development may later use up to 12 hours of coursework from the Certificate program toward the Master of Science in Real Estate degree.

## Finance (FINA)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5311. BUSINESS FINANCIAL MANAGEMENT (3-0).** Study of providing the organization with funds necessary for its operation and of achieving effective utilization of funds. Primary emphasis on financial decision-making within organizations, and techniques of financial analysis and forecasting. Prerequisite: ACCT 5301.

**5315. HEALTH CARE FINANCIAL MANAGEMENT (3-0).** Analysis of financial problems with an emphasis on the application of financial management principles and concepts to health care organizations. Prerequisite: FINA 5311 or equivalent.

**5323. INVESTMENTS (3-0).** Application of principles and techniques of investment management in solving investment problems of individuals and financial institutions. Considers apportionment of investment funds among alternatives, analysis of risk, valuation timing of security acquisitions. Prerequisite: FINA 5311 or equivalent.

**5327. FINANCIAL DERIVATIVES (3-0).** Nature and functions of the various futures and options markets; hedging for risk reduction, speculative trading for profit; the role of futures and options in overall portfolio strategy, along with fundamental concepts such as basis, spreading, normal and inverted markets and money management. Prerequisite: FINA 5311 or equivalent.

**5329. PORTFOLIO AND SECURITY ANALYSIS (3-0).** The use of economic and accounting data in the selection of securities. Examination of current and traditional techniques used by investment practitioners. Prerequisite: FINA 5311 or equivalent.

**5330. CORPORATE FINANCE (3-0).** Approaches to evaluating firm capital budgeting decisions including cost of capital and risk. Techniques for making investment decisions involving physical assets of nonfinancial firms. Prerequisite: FINA 5311 or equivalent.

**5331. INTERNATIONAL FINANCE (3-0).** Examines ways in which financial decision-making processes are altered by operation in a multinational environment. Includes the effects of devaluation expectations, foreign exchange and investment controls. Also, case study materials related to actual decisions by multinational firms. Prerequisite: FINA 5311 or equivalent.

**5334. FINANCIAL INSTITUTIONS AND MARKETS (3-0).** An examination of major financial institutions and markets with emphasis on trends affecting the current operations, competitive position, and overall future of the primary financial intermediaries and the financial markets. Prerequisite: FINA 5311 or equivalent.

**5340. FINANCIAL APPLICATIONS (3-0).** Analysis of financial problems of business concerns, presented in case materials. Considers determination of capital needs, choosing among alternative capital investments, planning methods of financing new capital expenditures, and planning recapitalizations, mergers, and reorganizations. Prerequisite: FINA 5311 or equivalent.

**5350. MATHEMATICAL FINANCE (3-0).** Intensive review of the mathematics necessary for graduate work in finance, with application to selected areas of business finance, investment analysis and financial markets.

**5351. SEMINAR IN FINANCE AND REAL ESTATE MODELING (3-0).** Study of common financial modeling techniques are explored in this course. The primary focus is on models used for pricing and analyzing derivative stock options and fixed income securities, although most of these techniques have other applications. Students are provided with the opportunity to develop the skills needed to build sophisticated financial models of their own.

**5182, 5282, 5382. INDEPENDENT STUDIES IN FINANCE.** Extensive analysis of a finance topic. Prerequisite: consent of faculty member and department chair.

**5392. SELECTED TOPICS IN FINANCE.** In depth study of selected topics in finance. May be repeated when topics vary. Prerequisite: consent of instructor and Graduate Advisor.

**6301. SEMINAR IN THE THEORY OF FINANCE (3-0).** Development of the fundamental theories of modern finance from their microeconomic origins. Topics include: investment under uncertainty, asset pricing models, market equilibrium, market efficiency, and expected utility theory.

**6311. SEMINAR IN THE THEORY OF CORPORATE FINANCE (3-0).** Advanced theory of corporate finance. Capital budgeting, dividend policy, and capital structure. Prerequisite: FINA 5311 or equivalent or consent of instructor.

**6312. SEMINAR IN THE THEORY OF INVESTMENTS (3-0).** Advanced theory of investments. Modern portfolio theory and the efficiency of capital markets. Prerequisite: FINA 5311 or equivalent or consent of instructor.

**6313. ADVANCED RESEARCH IN FINANCE (3-0).** Analytical methods commonly applied in the academic finance literature. Topics such as factor analysis in arbitrage pricing models and techniques for identification of nonstationarities in risk. Prerequisites: FINA 5311 and BUSA 5301 or consent of instructor.

**6314. ADVANCED RESEARCH IN FINANCE II (3-0).** Specialized and evolving techniques in financial research; topics such as identification of efficient markets, linear programming in capital budgeting, and multiple discriminant analysis in bankruptcy prediction and bond rating models. Prerequisites: FINA 5311 and BUSA 5301 or consent of instructor.

**6390. SEMINAR IN SPECIAL TOPICS IN FINANCE (3-0).** Doctoral level coverage of advanced topics in finance. May be repeated for credit when topics vary. Prerequisite: FINA 5311 or equivalent or consent of instructor.

**6192, 6292, 6392. RESEARCH IN FINANCE (3-0).** Independent study of advanced topics in finance under the direction of graduate faculty. May be repeated for credit when topics vary. Graded P/F/R. Prerequisite: FINA 5311 or equivalent or consent of instructor.

## Real Estate (REAE)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5311. REAL ESTATE ANALYSIS (3-0).** Survey of real estate investment, appraisal and valuation, finance, market analysis, and other phases of the real estate development/management process.

**5314. SEMINAR IN REAL ESTATE DEVELOPMENT (3-0).** Topics relating to site selection, design, market analysis, financial feasibility, and management in the real estate development process. Prerequisite: FINA 5311 or REAE 5311 or equivalent.

**5319. SEMINAR IN REAL ESTATE FINANCE (3-0).** Study of real property financing methods; analysis of cost of borrowing, sources of funds, and mortgage terms; emphasis on construction and permanent financing of commercial and industrial properties. Prerequisite: FINA 5311 or REAE 5311 or equivalent.

**5321. SEMINAR IN REAL ESTATE INVESTMENT (3-0).** Introduction to analytical techniques, sources of financing, and other factors related to real estate investment. Stresses current developments and topics. Prerequisite: FINA 5311 or REAE 5311 or equivalent.

**5327. ADVANCED REAL ESTATE MARKET ANALYSIS (3-0).** Study of advanced market analysis techniques and methods, including trend analysis and demand forecasting. Emphasis is on the application of these methods to commercial property markets.

**5334. SEMINAR IN REAL ESTATE APPRAISAL (3-0).** Market, cost, and income approaches with stress on income forecasting and capitalization. Prerequisite: FINA 5311 or REAE 5311 or equivalent.

**5350. QUANTITATIVE METHODS FOR REAL ESTATE (3-0).** Study of advanced statistical, modeling, and econometric techniques as applied to real estate markets. Emphasis on the integration of these techniques with traditional real estate analysis.

**5182, 5282, 5382. INDEPENDENT STUDIES IN REAL ESTATE.** Extensive analysis of a real estate topic. Prerequisite: consent of faculty member and department chair.

**5392. SELECTED TOPICS IN REAL ESTATE (3-0).** In-depth study of selected topics in real estate. May be repeated when topics vary. Prerequisite: REAE 5311 or equivalent or consent of instructor.

**5398, 5698. THESIS.** Prerequisite: permission of the Graduate Advisor in Real Estate.

**6390. SEMINAR IN SPECIAL TOPICS IN REAL ESTATE (3-0).** Doctoral level coverage of advanced topics in real estate. May be repeated for credit when topics vary. Prerequisite: REAE 5311 or equivalent or consent of instructor.

**6192, 6292, 6392. RESEARCH IN REAL ESTATE (3-0).** Independent study of advanced topics in real estate under the direction of graduate faculty. May be repeated for credit when topics vary. Graded P/F/R. Prerequisite: REAE 5311 or equivalent or consent of instructor.

# Program in Health Care Administration

<http://utafw.uta.edu/hcad>

Areas of Study and Degrees  
Health Care Administration  
M.S.

Master's Degree Plans  
Non-Thesis

## Graduate Advisor

Darren Grant  
331 Business, 817-272-3286  
dgrant@uta.edu

## Graduate Studies

Alisa Johnson  
107Q Business, 817-272-3005

## Graduate Faculty

Graduate faculty from the College of Business Administration, School of Nursing, School of Social Work, and School of Urban and Public Affairs are involved in teaching and supervising graduate student research. See below for faculty contacts in these areas.

### Economics

Grant, Meiners

### Finance

Swanson

### Information Systems and Management Sciences

Frazier

### Management

McMahan, Quick

### Marketing

Munch

### Nursing

Grove

### Urban and Public Administration

Wyman

### Social Work

Schoech

## Objectives

The program in Health Care Administration is designed to provide graduate students an integrated, contemporary, and multidisciplinary education. Diverse topics are integrated into the curriculum, research and residences to provide:

1. An understanding of the modern health industry
2. Knowledge, skills and abilities to assume administrative roles in various organizations in the health industry
3. Opportunities to develop leadership skills
4. Interactions with diverse specialists in the health industry to evaluate and resolve administrative problems

## Admission

Admission to the M.S. in Health Care Administration (HCAD) program is based upon the completion of the general admission requirements of the Graduate School. For HCAD program admission a score on the Graduate Management Admission Test (GMAT) and record of one's undergraduate academic performance are required. Students for whom English is not their native language must achieve a TOEFL score of at least 575 (paper-based) or 230 (computer-based). International applicants that score below minimum acceptable levels on the verbal portion of entrance examinations may be admitted under the condition that they pass an English proficiency exam or complete U.T. Arlington's Graduate English Skills Program prior to beginning graduate coursework. Applicants are encouraged to submit with their application a resume that highlights professional and personal accomplishments, linguistic abilities, computer expertise and leadership experience. Applicants with two or more years of experience in the health care industry are preferred. A standardized test score (GMAT) will not be used as the sole criterion for denying an applicant's admission to the HCAD program.

Multiple criteria are used to make admission decisions. Quantitative measures include an applicant's GMAT scores and grade point average as calculated by the Graduate School. These measures are integrated into a formula, or index, that multiplies the grade point average by 200 and adds the total GMAT score. Index factors are weighed equally at the outset of applicant evaluation. A graduate grade point average is used in the index when it is 3.0 or above and is based on at least 24 semester hours. The GMAT test may be waived for individuals who have received satisfactory scores on the verbal, quantitative and analytical sections of the GRE.

Along with grade point average and GMAT scores, admission criteria include the following:

1. GMAT sub scores (verbal and quantitative)
2. GMAT writing sample
3. Grades in specified undergraduate business and non-business courses (math, accounting, economics, statistics, for example)
4. Educational objectives and quality of written expression of the application essay
5. Letters of recommendation from three persons familiar with the applicant's academic background and/or work experience
6. Undergraduate major
7. General and specific program accreditation status of degree granting institution
8. Professional work experience
9. Professional certification or licensure
10. A personal interview, at the discretion of the program advisor



## Unconditional Admission

For unconditional admission, the applicant's composite total from the index must be 1050 or higher and items 1 through 5 above should strongly indicate potential for successful academic performance as a graduate health care administration student.

The GMAT test may be waived for applicants with an earned graduate degree in an appropriate health care related discipline or profession.

The GMAT test may also be waived for applicants with five or more years of increasing responsibility in managerial, professional, and/or technical positions in the health care industry, and with a 3.0 grade point average on undergraduate work as calculated by the Graduate School; detailed work history required with application.

The GMAT test may also be waived for individuals who have received a bachelor's degree from U.T. Arlington within the last three years with a 3.2 grade point average in the last 60 hours of work, subject to the other requirements listed in the Admission section of this catalog.

The GMAT test may also be waived for individuals who have received satisfactory scores on the verbal, quantitative and analytical sections of the GRE (Graduate Record Examination).

Students who are unconditionally admitted, have a minimum undergraduate grade point average of 3.0 as calculated by the Graduate School (or 3.0 at the graduate level), and enroll for a minimum of six semester credit hours will be eligible for available fellowship and/or scholarship support. A standardized test score (GMAT) will not be used as the sole criterion for determining fellowship and/or scholarship eligibility.

## Probationary Admission

For an applicant with an index score below 1050, probationary admission may be available when at least three items of 1 through 5 above strongly indicate potential for successful academic performance as a graduate health care administration student. Items 6 through 10 will also be used to identify positive indicators for admission. Students who are admitted on probation will have one or more conditions specified, such as no grade less than 'B' for the first 12 hours of graduate study.

## Provisional, Deferred and Denied Admission

A provisional decision to admit may be granted when the applicant meets criteria for unconditional or probationary status but one or more applicant credentials are incomplete. A deferred decision may be made when an applicant's file is not sufficiently complete to make an admit or deny decision.

For an applicant with an index score less than 1000 and other evidence that indicates lack of potential for academic success as a graduate health care administration student, admission will likely be denied. However, all applicant data will be carefully reviewed before an admission denial is made.

## Degree Requirements

The M.S. Degree in health Care Administration requires 36 hours of specified coursework. The twelve courses are normally taken in the following sequence.

ECON 5333 Economics of Health

MANA 5340 Strategic Human Resource Management

HCAD 5310 Health Care Law  
 ECON 5313 Managerial Economics  
 ACCT 5301 Accounting Analysis I  
 FINA 5315 Health Care Financial Management  
 MARK 5330 Service Marketing Management  
 HCAD 5301 Health Care Administration I  
 INSY 5350 Health Care Information Systems  
 BUSA 5325 Advanced Statistical Methods  
 HCAD 5390 Seminar in Health Care Administration  
 HCAD 5399 Residence

Together these courses provide the student with a general background in business and economics and industry relevant knowledge in all of the fundamental areas of managing health care organizations. The residence or internship course requirement can be satisfied in either of two methods. The residence options are as follows:

**Working Residence.** The completion of a residence is a primary component of the program for students who do not have prior appropriate professional work experience in a health-related organization. The residence provides students the opportunity to acquire firsthand professional knowledge of and experience with the functioning of a health-related organization. The working residence requires the completion of 240 hours of approved work experience in a professional capacity and a final written report, related to the student's residence, supervised by a member of the faculty of the degree program. The Graduate Advisor will provide overall supervision and coordination of the residence.

**Residence Substitute.** A student who has substantial and acceptable work experience in a supervisory or professional position may qualify for the residence substitute. Work experience is approved by the Graduate Advisor. Accordingly, a student may request:

**Option I.** Design, conduct and complete a supervised research project, an effort equivalent in scope to three (3) hours of graduate research-oriented courses, that is highly relevant to the student's intended future professional focus in lieu of a working residence; the project will be supervised by at least one member of the faculty of the degree program, or

**Option II.** Complete an approved graduate course with significant research content highly relevant for the student's intended future professional field of specialty.

## Graduate Certificate Program Admission

The certificate program is available to any student who has been admitted into the Graduate School at U.T. Arlington. The student should contact the Graduate Advisor to declare the intent to earn the certificate before enrolling in courses to satisfy certificate requirements.

## Program of Study

The certificate requires the completion of at least 12 hours of courses selected from HCAD 5301, HCAD 5310, HCAD 5390, ECON 5333, FINA 5315, INSY 5350, or MARK 5330 as approved by the Graduate Advisor. A grade of A or B must be received for all courses that can be applied to meet certificate requirements.

## Transfer to the M.S. Program

A student in the Certificate Program must apply for admission and meet all admission requirements to enter the M.S. program.

## Integrated Degree Plans

### Bachelor of Science in Biology and Master of Science in Health Care Administration

A five-year curriculum designed to prepare students for careers in health care administration. The curriculum also prepares students for medical school and advanced study. Students are required to take courses from life sciences, business and liberal arts, culminating in a five-year Master of Science Degree in Health Care Administration (HCAD), including a Bachelor of Science Degree in Biology. The curriculum is offered jointly by the College of Business Administration and the College of Science. The BS in Biology will be conferred at the same time that the student is awarded the MS in Health Care Administration. If a student engaged in this joint degree program is not accepted into the HCAD graduate program, or enters the HCAD program and fails to complete the requirement for the master's degree in HCAD, then in order to earn a BS in Biology, the student must take the same, full complement of courses required to earn the BS as taken by students not enrolled in the BIOL/HCAD joint program.

Students interested in this integrated undergraduate and graduate degree plan should consult with the Biology undergraduate advisor and the Health Care Administration graduate advisor.

### Bachelor of Arts in Psychology and Master of Science in Health Care Administration

The five-year curriculum prepares students for careers in health care administration. Students are required to take courses from behavioral and life sciences, business, and liberal arts, culminating in a five-year Master of Science Degree in Health Care Administration (HCAD), including a Bachelor of Arts degree in Psychology. The BA degree in Psychology will be awarded at the same time that the student receives the MS in Health Care Administration. If a student engaged in this joint degree program is not accepted into the HCAD graduate program, or enters the HCAD program and fails to complete the requirements for the masters degree in HCAD, a BA degree in Psychology will not be awarded until the student has completed all courses required of students for a BA degree who are not enrolled in this dual degree program. Courses taken in Business may be used to satisfy the requirements of a minor area of study.

Students interested in this integrated undergraduate and graduate degree plan should consult with the Psychology undergraduate advisor and the Health Care Administration graduate advisor.

## Dual Degree Plan

### Master of Science in Health Care Administration and Master of Science in Nursing

The College of Business Administration and the School of Nursing offer a dual degree consisting of the M.S. in Health Care Administration and the Master of Science in Nursing. Both degrees focus on administration and health care content and can be completed with a minimum of 56 hours total. Students can expand their knowledge and skills of nursing while also preparing themselves for

administrative positions in a variety of health care organizations. Persons interested in pursuing both degrees simultaneously should review the dual degree arrangements presented in the introductory sections of the catalog and consult with both the advisor of the M.S. in Nursing and the advisor of the M.S. in Health Care Administration.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Health Care Administration (HCAD)

**5301. HEALTH CARE ADMINISTRATION I (3-0).** Introduction to health care; legislation; reimbursement systems; characteristic administrative and clinical roles responsibilities and education; public health care structures; regulatory agencies; health industry trends; and advances in research and technologies.

**5302. HEALTH CARE ADMINISTRATION II (3-0).** Managed care; types of health care delivery systems; national health care policy; teamwork in primary care; management of cost and quality of care; legal issues; ethical issues, including bioethics and business ethics; changing roles of health care professionals; varieties of domestic, public and international health care delivery systems. Prerequisite: HCAD 5301 or consent of Graduate Advisor.

**5310. HEALTH CARE LAW (3-0).** Coverage of statutory and case law of the health care industry. Topics include patient rights and malpractice, employment and compensation matters, insurance and claims, and government agencies that regulate aspects of health services delivery.

**5390. SEMINAR IN HEALTH CARE ADMINISTRATION (3-0).** Integration of the curriculum into a cohesive whole. Use of policy cases in health care to develop decision and leadership skills.

**5192, 5292, 5392. SPECIAL TOPICS IN HEALTH CARE ADMINISTRATION.** In-depth study of selected topics in health care administration. Prerequisite: consent of instructor and Graduate Advisor.

**5398. RESEARCH IN HEALTH CARE ADMINISTRATION.** Independent research under the supervision of a faculty member. Prerequisite: consent of instructor and Graduate Advisor. HCAD 5398 is graded R/P/F.

**5399, 5699, 5999. RESIDENCE.** Practicum in health care administration and application of concepts and theories to administrative situations in the health industry. HCAD 5399, 5699 and 5999 are graded R/P/F. Prerequisites: ACCT 5301 and HCAD 5301.

## Objective: M.B.A. Program

Information Systems emphasizes the preparation required for developing and managing computer-based information systems. The comprehensive curriculum includes the study of applicable computer hardware, software, and database technology; the design of information systems; and management and control of information technologies and applications.

Operations Management (OPMA) focuses on the activities involved in the transformation of inputs into outputs for both manufacturing and service organizations. The OPMA courses contain a variety of topics such as scheduling, inventory management, operations strategy, quality, logistics, project management and supply chain management.

## Objective: Master of Science in Information Systems

The objective of the Master of Science degree in Information Systems is to provide qualified students with both a general knowledge of business and a specialized knowledge of information systems. Students are exposed to the theory, research, and practical applications of numerous information systems areas including management information systems, database management systems, systems analysis and design, and data communications; and may take electives in distributed systems, information resource management, general systems concepts, electronic commerce, ERP, decision support systems, problem formulation, computer science, management sciences, research, and other related fields. The program is designed to prepare students for information systems careers in government and nonprofit organizations as well as in business and industry.

## Objective: Ph.D. in Business Administration Program

The objective of the Ph.D. degree in Business Administration is primarily to develop scholars with an ability to teach and conduct independent research. The program is designed to provide the student with fundamental knowledge in these areas. Doctoral students in information systems can work in many areas of current expertise of the faculty, such as: data base management, systems development, object technology, distributed systems, electronic commerce, information resource management, enterprise resource planning, decision support systems, knowledge management, and human aspects of information systems. Within operations management/statistics, students can concentrate in either operations management or business statistics.

## Accreditation

The Master of Science degree in Information Systems is accredited by AACSB.

# Department of Information Systems and Operations Management

[www2.uta.edu/infosys](http://www2.uta.edu/infosys)

## Areas of Study and Degrees

### Business Administration

M.B.A., Ph.D.

(See Program in Business Administration)

### Information Systems

M.S.

### Mathematical Sciences

Ph.D.

(See Interdepartmental and Intercampus Programs)

## Master's Degree Plans

Thesis or Thesis Substitute

## Chair

R.C. Baker

535 Business, 817-272-3502

## M.S.I.S. Graduate Advisor

Carolyn Davis

508 Business, 817-272-7399

## INSY Ph.D. Graduate Advisor

Radha Mahapatra

502 Business, 817-272-3590

## OPMA/STAT Ph.D. Graduate Advisor

Greg Frazier

530 Business, 817-272-3559

## Graduate Faculty

### Professors

Baker, Raja, Teng, Whiteside

### Associate Professors

Eakin, Frazier, Mahapatra,

Sikora, Slinkman

### Assistant Professors

Cannon, Duffy, Henderson,

Nerur, Prater, Song, Swafford

## Admission: M.S.I.S. Program

Admission to the M.S. in Information Systems (MSIS) program is based upon the completion of the general admission requirements of the Graduate School. For MSIS program admission an acceptable score on the Graduate Management Admission Test (GMAT) and a satisfactory record of undergraduate academic performance are required. Applicants are encouraged to submit with their application a resume that highlights professional and personal accomplishments, linguistic abilities, computer expertise and leadership experience. Applicants with two to five years of experience are preferred. A single standardized test score will not be used as the sole criterion for denying an applicant's admission to the MSIS program. Similarly, scores in English and quantitative skills that fall below acceptable levels on a single standardized test will be viewed in conjunction with other demonstrated skills in these areas.

Students for whom English is not their native language must achieve a Test of English as a Foreign Language (TOEFL) score of at least 570 (paper-based) or 230 (computer-based). International applicants that score below minimum acceptable levels on the verbal portion of entrance examinations may be admitted on probation with acceptable demonstration of English proficiency.

Multiple criteria (both quantitative and qualitative) are used to make admission decisions. Quantitative measures include an applicant's GMAT score, GMAT Verbal percentile, GMAT Quantitative percentile, and grade point average as calculated by the Graduate School. These measures are integrated into a formula, or index, that multiplies the grade point average by 200 and adds the total GMAT score. Index factors are weighed equally at the outset of applicant evaluation. When applicable, a graduate grade point average is considered when it is based on at least 24 semester hours of graduate work.

Along with the grade point average and GMAT total score, admission criteria include the following:

1. GMAT sub-scores (verbal and quantitative)
2. GMAT writing sample
3. Grades in specified undergraduate business and business-related courses (math, accounting, economics, statistics, for example)
4. Graduate academic performance, if applicable
5. Educational objectives and quality of written expression of the application essay
6. Letters of recommendation from three persons familiar with the applicant's academic background and/or work experience
7. Undergraduate major and relevance to graduate study in IS
8. General and specific program accreditation status of degree granting institution
9. Professional work experience
10. Professional certification or licensure

## Unconditional Admission

For unconditional admission, the applicant's composite total from the index must be 1120 or higher, and items 1 through 6 above should strongly indicate potential for successful academic performance as a graduate information systems student. If an applicant falls below the GMAT Verbal percentile of 30 and/or the GMAT Quantitative percentile of 30, corroborating evidence of proficiency in that skill will be reviewed.

Students who are unconditionally admitted must have a minimum undergraduate grade point average of 3.00 as calculated by the

Graduate School (or 3.00 at the graduate level), and enroll for a minimum of six semester credit hours to be eligible for available fellowship and/or scholarship support. A standardized test score will not be used as the sole criterion for determining fellowship and/or scholarship eligibility.

## Probationary Admission

For an applicant with an index score below 1120, probationary admission may be available when at least three items of 1 through 6 above strongly indicate potential for successful academic performance as a graduate information systems student. Items 7 through 10 will also be used to identify positive indicators for admission. When verbal or quantitative percentiles are below the 30th percentile, probationary admission may be available. Students admitted on probationary status for low verbal or quantitative percentiles, must satisfactorily complete one or more English and/or math courses in the first two semesters as specified by the Graduate Advisor. Students who are admitted on probation must meet the conditions specified, such as no grade less than 'B' for the first 12 hours of graduate study and any required undergraduate course.

## Provisional, Deferred and Denied Admission

A provisional decision to admit may be granted when the applicant meets criteria for unconditional or probationary status but one or more applicant credentials are incomplete. A deferred decision may be made when an applicant's file is not sufficiently complete to make an admit or deny decision.

For an applicant who does not meet minimum acceptable scores on the GMAT, and other evidence indicates lack of potential for academic success as a graduate information systems student, admission will be denied. However, all applicant data will be carefully reviewed before an admission denial is made.

## Degree Requirements

For students who have earned a Bachelor of Business Administration (BBA) degree (or equivalent), the program consists of a minimum of 30 semester hours, including six hours of thesis work. Nine semester hours of advanced electives approved by the Graduate Advisor can be substituted for the thesis, in which case the advanced program will be 33 semester hours. Students who do not have a BBA may have to take additional coursework (up to 18 semester hours) to acquire sufficient general business knowledge for effective performance as an information systems professional. Foundation courses which are listed in Section 1 below, may be waived if equivalent coursework has been completed.

Students with no background in computers or business math may have to take deficiency courses prior to the foundation courses. Students who are deficient in written and/or oral communication may be required to take appropriate English and speech courses.

The minimum advanced program of 30 semester hours contains six hours of required work in research and statistical methods; 12 hours of required work in object-oriented business programming, database management systems, systems analysis and design, and distributed information systems and data communications; six hours of electives (to be selected from an approved list of elective courses, or to be approved upon selection by the Graduate Advisor); and six hours of thesis demonstrating acceptable performance on a major systems project or an approved nine-semester-hour thesis substitute.

The required curriculum is as follows:

1. Foundation Courses (18 semester hours)
  - ACCT 5301 Accounting Analysis I
  - ECON 5311 Economic Analysis
  - MARK 5311 Marketing
  - FINA 5311 Finance
  - MANA 5312 Management
  - OPMA 5361 Operations Management
2. Advanced Courses (Thesis Substitute Option - 33 hours; Thesis Option - 30 hours)
  - (a) Required Research courses (6 semester hours)
    - BUS6 5325 Advanced Statistical Methods in Business
    - Approved Research Elective
  - (b) Required Information Systems courses
    - Thesis Substitute Option (15 semester hours)\*
    - INSY 5309 Object Oriented Business Programming
    - INSY 5335 Applied Database Management
    - INSY 5341 Systems Analysis and Design
    - INSY 5343 Computer Networks and Distributed Systems
    - INSY 5375 Management of Information Systems
    - Thesis Option (12 semester hours)\*
    - INSY 5309 Object Oriented Business Programming
    - INSY 5335 Applied Database Management
    - INSY 5341 Systems Analysis and Design
    - INSY 5343 Computer Networks and Distributed Systems
  - (c) Approved Electives
    - Thesis Substitute Option (12 semester hours)
    - Approved electives (12 semester hours)
    - Thesis Option (12 semester hours)
    - Thesis (BUSA 5698) (6 semester hours)
    - Approved electives (6 semester hours)

To the extent possible, electives should be chosen from one of the suggested information systems tracks: systems development or electronic commerce.\*\*

Upon Graduate Advisor approval, outside elective courses may be selected from areas such as accounting, computer science, finance, industrial engineering, management, management sciences, marketing, mathematical sciences, psychology, and operations management (6 semester hours).

\*Courses may be substituted if equivalent courses have been taken.

\*\*An approved 3-credit hour graduate internship (BUSA 5399) may also be taken as an elective.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded

courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Information Systems (INSY)

Course fee information is published in the online student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**Important note regarding current course requirements:** Current course descriptions and prerequisites can be found at [www2.uta.edu/infosys/MSprogram.html](http://www2.uta.edu/infosys/MSprogram.html). Because of the dynamic and changing nature of information systems courses, students should check this site or consult an advisor each semester to determine the latest course prerequisites for all information systems courses.

**5307. WEB PROGRAMMING (3-0).** Introduction to programming, client-side Web applications and design using various web-centric tools such as HTML, Cascading Style Sheets, JavaScript and DHTML.

**5308. INTERACTIVE APPLICATION DEVELOPMENT (3-0).** Topics include the visual programming environment, event-driven programming, file processing, database processing, error handling, objects and class libraries.

**5309. OBJECT-ORIENTED BUSINESS PROGRAMMING (3-0).** Topics include fundamental programming structures, objects and classes, inheritance, graphics programming, user interfaces, intranet and Internet applets, data structures and files, and multithreading.

**5315. ADVANCED WEB DEVELOPMENT (3-0).** Advanced Web development for server-side Web applications using Active Server Pages (ASP) and other techniques. Prerequisites: INSY 5307 and 5309. INSY 5309 may be taken concurrently.

**5330. INTRODUCTION TO INFORMATION SYSTEMS (3-0).** Introduction to major information technology trends and the IT-impacted organizational environment.

**5335. APPLIED DATABASE MANAGEMENT (3-0).** Concepts, tools, and technologies associated with the design, implementation and management of large databases are presented. Topics include data models (with emphasis on E/R model and relational model), database design and implementation, database query language, transaction management, and distributed databases. Recent advances in data management are also discussed. Use of a commercial DBMS is required. Prerequisite: INSY 5309.

**5340. ELECTRONIC COMMERCE (3-0).** Topics may include new perspectives on space, time and money in business; business-to-business networking; the effect of e-commerce on logistics and supply chain management; electronic financial markets and digital payments mechanisms; marketing through digital storefronts and virtual corporations, electronic auctions; and their implications for business strategy and other corporate functions. (Note: This is not a Web site design course).

**5341. ANALYSIS AND DESIGN (3-0).** Analysis and design phase of systems development life cycle. Topics include systems survey, functional specification, interface specification, data design, program design, system testing, and implementation. Prerequisites: INSY 5335 and 5330. INSY 5330 may be taken concurrently.

**5342. INFORMATION SYSTEMS DEVELOPMENT (3-0).** An integrative course in which students work with an information system

project throughout the entire development life cycle. Topics to be addressed include project management, documentation and group dynamics, as well as the integration of analysis, design, programming and other IS skills. Prerequisite: INSY 5341.

**5343. COMPUTER COMMUNICATIONS AND NETWORKING (3-0).** Technological and managerial issues related to design, operation and maintenance of computer networks. Topics include communication architectures and protocols, LANs and WANs, ATM and frame relay, cellular and satellite communication, the World Wide Web, the Internet, and electronic commerce. Prerequisite: INSY 5330 or equivalent.

**5350. HEALTH CARE INFORMATION SYSTEMS (3-0).** Addresses issues in the development, integration, and management of health care information systems. Specifically, topics in financial information systems, patient care systems, and health care delivery applications will be discussed. Both case studies and real life applications will be studied.

**5352. TOPICS IN OBJECT TECHNOLOGY (3-0).** Coverage of current topics in Object Technology. Includes the study of Object-Oriented Agents, Components, Object Request Brokers, distributed objects and related implementations of object-oriented software. Also includes the study of design patterns in object-oriented software design. Prerequisite: INSY 5309.

**5354. ENTERPRISE APPLICATION DEVELOPMENT (3-0).** This course will address the architectures, methodologies, tools and techniques used in the development and deployment of enterprise-level information systems applications. The topics covered will include client/server applications, intranet/internet applications, distributed applications, enterprise-level objects and server-side components. Prerequisites: INSY 5341 and 5352.

**5357. ENTERPRISE RESOURCE PLANNING (3-0).** An introduction to enterprise resource planning (ERP), a business management paradigm that integrates all facets of the business, including planning, manufacturing, sales, finance and marketing. Course will cover both the methodology and practice of ERP using commercial software packages. Prerequisite: INSY 5330 or equivalent.

**5365. ELECTRONIC COMMERCE APPLICATION TECHNOLOGIES (3-0).** Survey and assessment of tools, technologies and solutions available for e-commerce application design, development and deployment. Topics will include discussion and evaluation of tools and technologies for the development and implementation of site servers, commerce servers, application servers, Web servers, electronic storefronts, catalogs, shopping carts, search engines and other e-commerce enablers. Tools for content development, management and delivery will also be addressed. Prerequisite: INSY 5340.

**5370. ADVANCED ELECTRONIC COMMERCE APPLICATION DEVELOPMENT (3-0).** Developing and maintaining advanced e-commerce applications. Topics will include the development of client-side scripting, server-side scripting, database connectivity and access, data retrieval and updates, dynamic web content development, cascading styles, server based components, site design, SSL security, certificates, shopping carts and payment processing in e-commerce applications. Prerequisites: INSY 5341 and 5365.

**5375. MANAGEMENT OF INFORMATION SYSTEMS (3-0).** Addresses the management of the information resource from a senior management viewpoint. Covers the use of information technology to achieve competitive advantage, information technology and the organization, managing information assets, managing outsourcing, information technology operations and management processes, and

information technology as a business. To be taken in the student's final semester.

**5182, 5282, 5382. INDEPENDENT STUDIES IN INFORMATION SYSTEMS.** Extensive analysis of an information systems topic. Graded P/F/R. Prerequisite: consent of faculty member and department chair.

**5192, 5292, 5392. SELECTED TOPICS IN INFORMATION SYSTEMS.** In-depth study of selected topics in information systems. May be repeated when topics vary. Prerequisite: consent of instructor and Graduate Advisor.

**5398, 5698. THESIS.** Prerequisite: permission of Graduate Advisor in Information Systems. 5398 graded R/F; 5698 graded P/F/R.

**6182, 6282, 6382. INDEPENDENT STUDY IN INFORMATION SYSTEMS.** Doctoral level study of information systems topics. Prerequisites: Doctoral standing and consent of instructor.

**6301. SEMINAR IN RESEARCH FOUNDATIONS (3-0).** Integrative analysis of research in information systems, including research philosophies and methodologies, contemporary research topics, dissertation research and future directions for information systems research. Prerequisite: consent of instructor.

**6306. SEMINAR IN INFORMATION TECHNOLOGIES (3-0).** Focuses on contemporary technology issues in IS development and deployment. Prerequisite: INSY 6301.

**6307. SEMINAR IN IS MANAGEMENT (3-0).** Focuses on managerial and organizational issues in IS. Prerequisite: INSY 6301.

**6311. SEMINAR IN INFORMATION SYSTEMS (3-0).** Seminar in issues and topics in Information Systems. Areas addressed may include primary concepts of Information Systems, theoretical frameworks for systems applied to development, management and decision making. Prerequisite: INSY 6301.

**6380. RESEARCH IN INFORMATION SYSTEMS (3-0).** Independent research under the supervision of a faculty member; may be repeated when topic varies. Graded P/F/R. Prerequisite: consent of instructor.

**6392. SELECTED TOPICS IN INFORMATION SYSTEMS (3-0).** Advanced doctoral level topics in Information Systems. May be repeated when topics vary. Prerequisites: Doctoral standing and consent of the instructor.

**DISSERTATION**—See Business Administration entry for students in the Ph.D. Program in Business Administration; see Mathematical Science entry for students in the Ph.D. Program in Mathematical Sciences.

## Management Sciences (MASI)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5330. NONPARAMETRIC STATISTICS (3-0).** A survey of statistical techniques which may be used when the normal assumptions of parametric statistics cannot be made; inclusion of procedures for cross-classified data, methods involving ranks, and Kolmogorov-Smirnov type techniques. Prerequisite: BUSA 5325 or equivalent.

**5331. STATISTICAL GRAPHICS AND GRAPHICAL PERCEPTION (3-0).** Graphical depiction and analysis of data structure, graphical software, and graphical perception. Statistical topics would include exploratory analysis of univariate and multivariate data using graphical software, e.g., Lowess Smoothing and Sunflower Plots. Graphical perception topics include mental imaging theory, Weber's

and Steven's Laws, decision support, and review and critiques of current literature. Prerequisite: BUSA 5325 or equivalent.

**5332. ADVANCED DATA COLLECTION (3-0).** Surveys, audits, samples and experimental designs contrasted and compared as a basis for statistical inference. Emphasis is on the integration of techniques common to differing areas of business research. Prerequisite: BUSA 5325 or equivalent.

**5182, 5282, 5382. INDEPENDENT STUDIES IN MANAGEMENT SCIENCES.** Extensive analysis of a management sciences topic. Graded P/F/R. Prerequisite: consent of faculty member and Graduate Advisor.

**5392. SELECTED TOPICS IN MANAGEMENT SCIENCES.** In-depth study of selected topics in management sciences. May be repeated when topics vary. Prerequisite: consent of instructor and Graduate Advisor.

**6309. MULTIVARIATE STATISTICAL METHODS (3-0).** Focuses on methods of analyzing mean and covariance structures. Topics include commonly applied multivariate methods such as multiple analysis of variance, repeated measures, discriminant analysis, profile analysis, canonical correlations, and factor analytic methods. The use of matrix algebra and available computer packages will be stressed. Prerequisite: BUS6 5325.

## Operations Management (OPMA)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5321. INTRODUCTION TO MANAGEMENT SCIENCES (3-0).** Introduction to optimization and quantitative analysis of business problems. Topics include applications of linear and integer programming, network analysis, simulation, game theory, queuing theory, and other operations research tools.

**5324. COMPUTER MODELS IN OPERATIONS MANAGEMENT (3-0).** Course covers applications of common software packages used in operations management. Prerequisite: OPMA 5361.

**5361. OPERATIONS MANAGEMENT (3-0).** Introduction to concepts and problem-solving techniques important in production management and operations management. Topics include demand forecasting, capacity management, resource allocation, inventory management, supply chain management, quality control, and project management.

**5363. OPERATIONS PLANNING AND CONTROL (3-0).** Course covers operations planning and control systems in manufacturing and service organizations. Topics include inventory control, material requirements planning, Just-In-Time and lean manufacturing, production scheduling, capacity planning, and operations planning and control software. Prerequisite: OPMA 5361.

**5364. PROJECT MANAGEMENT (3-0).** Course covers concepts and issues important in effectively managing projects. Topics include

project selection, project planning, negotiation, budgeting, scheduling, resource allocation, project control, project auditing, and project termination. Prerequisite: OPMA 5361.

**5365. MANUFACTURING TECHNOLOGY MANAGEMENT (3-0).** Course focuses on current manufacturing technologies and their managerial implications. Also covers strategic issues such as technology justification, adoption, implementation, and integration. Prerequisite: OPMA 5361.

**5367. QUALITY MANAGEMENT (3-0).** Course focuses on quality of products and services needed by society. Topics include consideration of quality cost and improvements, designing for quality, process controls, inspections, testing, acceptance sampling, management controls, and quality information systems. Prerequisite: BUSA 5301 or equivalent.

**5368. GLOBAL SUPPLY CHAIN MANAGEMENT (3-0).** Course covers concepts and issues important in managing supply chains. A strategic view is taken of the way companies coordinate their operations with suppliers and customers in a global marketplace. The strategic use of information systems to better manage supply chains is also covered. Prerequisite: OPMA 5361.

**5369. LOGISTICS MANAGEMENT (3-0).** Course covers physical supply, in-plant movement and storage, and physical distribution of materials, which comprise logistics systems in industry. Topics include facility location, transportation, warehousing, inventory control, distribution networks, and logistics information systems. Prerequisite: OPMA 5361.

**5392. SELECTED TOPICS IN OPERATIONS MANAGEMENT (3-0).** In-depth study of selected topics in operations management. May be repeated when topics vary. Prerequisite: Consent of instructor and Graduate Advisor.

**6370. SEMINAR IN OPERATIONS MANAGEMENT (3-0).** Doctoral seminar that is a comprehensive and integrative study of operations management that focuses on theoretical frameworks, applications of models, and methods of analysis. Prerequisite: consent of instructor.

**6371. INTEGRATED OPERATIONS STRATEGY AND RESEARCH (3-0).** Linkages between the manufacturing and strategy development functions. Research issues within production/operations management. Current techniques/designs for achieving effective research. Prerequisite: OPMA 5361.

**6380. RESEARCH IN OPERATIONS MANAGEMENT (3-0).** Independent research under the supervision of a faculty member. May be repeated for credit. Prerequisite: consent of instructor and Graduate Advisor.

**DISSERTATION**—See Mathematical Sciences entry for students in the Ph.D. Program in Mathematical Sciences; see Business Administration entry for students in the Ph.D. Program in Business Administration.

# Department of Management

<http://management.uta.edu>

## Areas of Study and Degrees Human Resource Management

M.S.  
Business Administration  
M.B.A., Ph.D.  
(See Program in Business Administration)

## Master's Degree Plans Thesis and Non-Thesis

### Chair

Jeffrey E. McGee  
209 Business, 817-272-3166

### Graduate Advisor

Gary C. McMahan  
214 Business, 817-272-3862

### Graduate Faculty Professors

Gray, Price,  
Quick, Rasheed,

### Associate Professors

Bell, McGee,  
McMahan, Wheeler

### Assistant Professors

Benson, Casper,  
Lavelle, Payne, Perez

## Objective

The basic purpose of the Master of Science degree in Human Resource Management is to provide students with both a general knowledge of business and a specialized knowledge in human resource management. Students are exposed to the theory, research and practical applications of numerous content areas, including human resource strategy and policy, human resource planning, human resource information systems, career planning and development, employee relations law, organization change and development, employee selection, compensation, training and development and employee diversity in organizations. The program is designed to prepare students for human resource management careers in business and industrial firms, as well as government and nonprofit organizations.

## Accreditation

The Master of Science in Human Resource Management is accredited by the AACSB—International (Association to Advance Collegiate Schools of Business—International).

## Admission and Degree Requirements

Admission to the M.S. in Human Resource Management (MSHR) program is based on the completion of the general admission requirements of the Graduate School. For MSHR program admission, a score on the Graduate Management Admission Test and record of undergraduate academic performance are required. Students for whom English is not their native language must also achieve a TOEFL score of at least 550. International applicants that score below minimum acceptable levels on the verbal portion of entrance examinations may be admitted under the condition that they pass an English proficiency exam or complete U.T. Arlington's Graduate English Skills Program prior to beginning graduate coursework. Applicants are encouraged to submit with their application a resume that highlights professional and personal accomplishments, linguistic abilities, computer expertise and leadership experience. A standardized test score (GMAT) will not be used as the sole criterion for denying an applicant's admission to the MSHR program.

Specifically, multiple criteria are used to make admission decisions. Quantitative measures include an applicant's GMAT score and grade point average as calculated by the Graduate School. These measures are integrated into a formula, or index, that multiplies the grade point average by 200 and adds the total GMAT score. Index factors are weighed equally at the outset of the applicant evaluation. A graduate grade point average is used in the index when it is 3.0 or above and is based on at least 24 semester hours.

Along with grade point average and GMAT total score, admission criteria include the following:

1. GMAT or GRE sub scores (verbal and quantitative)
2. GMAT or GRE writing sample
3. Grades in specified undergraduate business and non-business courses (math, accounting, economics, statistics, for example)
4. Educational objectives and quality of written expression of the application essay
5. Letters of recommendation from three persons familiar with the applicant's academic background and/or work experience
6. Undergraduate major
7. General and specific program accreditation status of degree granting institution



8. Professional work experience
9. Professional certification or licensure

### Unconditional Admission

For unconditional admission, the applicant's composite total from the index must be 1080 or higher and items 1 through 5 above should strongly indicate potential for successful academic performance as a graduate HR student.

Students who are unconditionally admitted, have a minimum undergraduate grade point average of 3.00 as calculated by the Graduate School (or 3.00 at the graduate level), and enroll for a minimum of six semester credit hours will be eligible for available fellowship and/or scholarship support. A standardized test score (GMAT) will not be used as the sole criterion for determining fellowship and/or scholarship eligibility.

### Probationary Admission

For an applicant with an index score below 1080, probationary admission may be available when at least three items of 1 through 5 above strongly indicate potential for successful academic performance as a graduate HR student. Items 6 through 9 will also be used to identify positive indicators for admission. Students who are admitted on probation will have one or more conditions specified, such as no grade less than "B" for the first 12 hours of graduate study.

### Provisional, Deferred and Denied Admission

A provisional decision to admit may be granted when the applicant meets criteria for unconditional or probationary status but one or more applicant credentials are incomplete. A deferred decision may be made when an applicant's file is not sufficiently complete to make an admit or deny decision.

For an applicant with an index score less than 1040 and other evidence indicating lack of potential for academic success as a graduate HR student, admission will likely be denied. However, all applicant data will be carefully reviewed before an admission denial is made.

### Curriculum

The program is designed primarily for the student who has a bachelor's degree in business administration. A minimum of 30 semester hours is required if the student chooses to write a thesis. If the student chooses not to write a thesis, a minimum of 36 semester hours is required. Students who do not have bachelor's degrees in business administration may have to take additional coursework (up to 18 semester hours) to acquire sufficient general business knowledge for effective performance as a human resource executive.

Coursework for the program includes six hours of required work in research and statistical methods, 15 hours of required work in human resources and policy, and thesis or elective hours in related management courses to complete the 30- or 36-hour requirements. For the students who choose to write a thesis, the six hours of thesis will involve working closely with one or more members of the graduate faculty from the Department of Management on a research project in a specialized area of interest in human resource management.

The curriculum is as follows:

1. Core Courses (18 semester hours)
  - ACCT 5301 Financial Accounting
  - ECON 5311 Economic Analysis II
  - OPMA 5361 Operations Management

- MARK 5311 Marketing
- FINA 5311 Business Finance
- MANA 5312 Management

2. Advanced Courses (21 semester hours, thesis and non-thesis)
  - a. Required human resource and policy courses (15 semester hours)
    - MANA 5340 Strategic Human Resource Management
    - MANA 5341 Staffing and Performance Management
    - MANA 5322 Compensation and Benefits
    - MANA 5323 Training and Development
    - BUSA 5333 Strategic Management
  - b. Required research courses (six semester hours)
    - BUSA 5325 Advanced Statistical Methods in Business
    - MANA 5334 Organizational Consulting
3. Thesis (MANA 5698) and three elective semester hours.
4. Non-thesis option requires 15 elective semester hours.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

### Management (MANA)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5312. MANAGEMENT (3-0).** Basic exploration of organizations in their environments. The elementary tools of management, which include: organizational objectives, social responsibility and ethics, policies, plans, and decision making; the design of organizations and jobs; the production and technology aspects of organization; the elements of leadership, behavior, and communication; and the elements of control and performance evaluation.

**5320. ORGANIZATIONAL BEHAVIOR (3-0).** Systematic study of behavioral problems in the complex organization. Analyzes the interaction of environmental and internal factors and their effects upon organizational behavior. The course is placed within the context of the organization process. Prerequisite: MANA 5312 or equivalent.

**5321. COMPLEX ORGANIZATIONS (3-0).** Provides the foundation for an in-depth knowledge of several important theories of management and organization. Attention to study of organizations, organizational effectiveness, comparative analysis of organizations, and the organization and its environment. Relates empirical findings and theoretical hypotheses with applied management concepts. Prerequisite: MANA 5312 or equivalent.

**5322. COMPENSATION AND BENEFITS (3-0).** Administration of compensation systems in business and other organizations; concepts, models and practices related to wage and salary levels and structures; perceived equitable pay; individual performance appraisal, rewards and satisfaction; benefits and employee services.

**5323. TRAINING AND DEVELOPMENT (3-0).** Examines the components of training systems. Topics include assessing training needs and establishing objectives, developing training programs, selecting appropriate training techniques, and evaluating training outcomes.

**5324. TEAM AND GROUP BEHAVIOR (3-0).** A study in team and group dynamics, critical processes and practices. Topics include team composition and development, problem solving strategies and performance, conflict management, leadership process and work team strategies.

**5325. INDUSTRIAL RELATIONS (3-0).** Examines union-management relations and considers the structure and functioning of the economic and social forces of importance at the policy level within both the firm and the union. Also considers non-union employee relationships. Prerequisite: MANA 5312 or equivalent.

**5326. ORGANIZATION DEVELOPMENT AND CHANGE (3-0).** Examines the process of organization development, change, and renewal at the individual, group, and organization level; central topics including diagnostic and intervention procedures at the three levels of analysis. Prerequisite: MANA 5312 or equivalent.

**5327. HUMAN RESOURCE LAW (3-0).** Coverage of statutory and case law in the employment setting. Emphasis placed on employment discrimination, compensation and benefits law; government agencies which administer and enforce employment laws are also reviewed. Prerequisite: MANA 5340.

**5330. CONFLICT MANAGEMENT AND DISPUTE RESOLUTION (3-0).** In depth review and analysis of dispute settlement procedures with special emphasis placed on arbitration of labor-management and employment disputes. Causes and consequences of workplace conflict are examined along with approaches to encouraging workplace cooperation. Prerequisite: MANA 5312 or equivalent.

**5331. MANAGEMENT OF INTERNATIONAL OPERATIONS (3-0).** Managerial implications of conducting business in foreign countries. Provides a framework for analyzing and dealing with the management of foreign and multinational organizations as influenced by cultural, political, and economic constraints. Prerequisite: MANA 5312 or equivalent.

**5332. EMPLOYEE DIVERSITY IN ORGANIZATIONS (3-0).** Examines implications of diversity in organizations. Human resource and organizational behavior issues related to aspects of diversity in the workplace are presented. Emphasis is placed on the need to effectively address diversity in organizations.

**5333. MANAGEMENT OF TECHNOLOGY (3-0).** Problems of managing research and development and other similar technologies which involve one-of-a-kind products and substantial numbers of professional skills. Explores what is known about the management of professionals and professional enterprises. Prerequisite: MANA 5312 or equivalent or consent of instructor.

**5334. ORGANIZATION CONSULTING (3-0).** Explores internal and external consulting to business organizations. Emphasis on the management of the change process through the stages of data gathering, diagnosis, analysis and recommendation. Prerequisite: MANA 5312.

**5335. MANAGEMENT OF EBUSINESS (3-0).** Examines innovative techniques for exchanging information, products, services, and payments

among organizations. Principles from sociology, governance, economics, and management delineate factors influencing organizational relationships. The use of technology to facilitate interaction within and among organizations is investigated. Explores the strategic and practical fusion of cultural, political, business, and technical factors needed to succeed in a dynamic global arena.

**5340. STRATEGIC HUMAN RESOURCE MANAGEMENT (3-0).** Emphasizes strategic perspective of modern human resource management theory and practice. Topics include human resource planning, staffing, training and development, compensation, performance appraisal, and labor and employee relations. Prerequisite: MANA 5312 or equivalent.

**5341. STAFFING AND PERFORMANCE MANAGEMENT (3-0).** This course covers employee recruitment, selection and performance appraisal. Topics include: recruitment strategies and methods, methods of employee selection, performance planning, development and validation of appraisal instruments, implementation and conduct of performance appraisal, and performance feedback and counseling.

**5342. PREVENTIVE STRESS MANAGEMENT (3-0).** Examines the organizational demands that cause stress. Identifies the psychophysiology of the stress response and the individual/organizational costs of distress. Emphasis is placed on the principles and methods of preventive stress management, such as social support, exercise, and the relaxation response. Prerequisite: MANA 5312 or equivalent or consent of instructor.

**5182, 5282, 5382. INDEPENDENT STUDIES IN MANAGEMENT.** Extensive analysis of a management topic. Graded R. Prerequisite: consent of faculty member and department chair.

**5192, 5292, 5392. SELECTED TOPICS IN MANAGEMENT.** In-depth study of selected topics in management. May be repeated when topics vary. Prerequisite: consent of instructor and Graduate Advisor.

**5698. THESIS.** Prerequisite: permission of Graduate Advisor in Human Resource Management. Graded P/F/R.

**6318. SEMINAR IN ORGANIZATIONAL THEORY (3-0).** Advanced study in the theory and research of organizations.

**6328. SEMINAR IN BUSINESS POLICY (3-0).** Advanced study in the theory and research bases of business policy and strategic management.

**6329. ADVANCED RESEARCH METHODS (3-0).** In-depth coverage of selected topics in the design of research and analysis of data; topics include philosophy of science, theory of measurement, complex experimental and quasi-experimental designs.

**6338. SEMINAR IN ORGANIZATIONAL BEHAVIOR (3-0).** Advanced study in the theory and research of organizational behavior.

**6348. SEMINAR IN PERSONNEL/HUMAN RESOURCE MANAGEMENT (3-0).** Advanced study in employee selection, performance appraisal, compensation, training and development, human resource policy and strategy, and other areas of human resource management.

**6182, 6282, 6382. INDEPENDENT STUDIES IN MANAGEMENT.** Extensive analysis of a management topic. Prerequisite: consent of faculty member and department chair.

**6390. ADVANCED TOPICS IN MANAGEMENT (3-0).** In-depth study of selected topics in management. May be repeated when topics vary. Prerequisite: consent of instructor.

**6392. RESEARCH IN ADMINISTRATION (3-0).** Independent research under supervision of a faculty member. Graded P/F/R. Prerequisite: consent of instructor.

## Objective: M.S. Program

The objective of the Master of Science in Marketing Research is to prepare qualified students for careers as managers in marketing research, marketing planning, product/brand management, and related fields. Students are exposed to a range of coursework related to the theory and practice of marketing research. In addition, courses in information systems and management science focus on the latest theory and practice in those areas relevant to marketing research. Students are required to participate in an internship program.

## Accreditation

The Master of Science degree in Marketing Research is accredited by the AACSB—The International Association for Management Education.

## Admissions

Admission to the M.S. in Marketing Research (MSMR) program is based upon the completion of the general admission requirements of the Graduate School. For MSMR program admission a score on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE) and record of undergraduate (and post-graduate, if applicable) academic performance are required. Students for whom English is not their native language must achieve a satisfactory TOEFL score (specified below). International applicants who score below minimum acceptable levels on the verbal portion of entrance examinations may be admitted under the condition that they pass an English proficiency exam or complete U.T. Arlington's Graduate English Skills Program prior to beginning graduate coursework.

Applicants are encouraged to submit with their application a resume that highlights career objectives, professional and personal accomplishments, computer expertise, and leadership experience. Applicants with two to five years of experience are preferred, though postgraduate work experience is not a requirement for admission. A standardized test score (GMAT or GRE) will not be used as the sole criterion for approving or denying an applicant's admission to the MSMR program.

## Unconditional Admission

A decision to admit unconditionally is made based on the totality of information listed below, and not on any single factor alone.

1. Undergraduate degree: the applicant holds at least a bachelor's degree from an accredited U.S. college or university, in any discipline, or, for applicants who do not hold a bachelor's degree from an accredited U.S. college or university, a degree equivalent to a U.S. bachelor's degree, as judged by the UTA Graduate School;
2. Grade-point average (GPA): a GPA of at least 3.1 on a 4.0 scale, as calculated by the Graduate School, in the last 60 semester-hours of college or university study;
3. Graduate admission test score: a score of at least 580 on the Graduate Management Admission Test (GMAT), with both verbal and quantitative scores at the 50th percentile or better, or equivalent or better scores on the Graduate Record Exam (GRE);
4. TOEFL score: for students who do not hold a degree from an accredited U.S. college or university, a score on the Test of English as a Foreign Language of at least 230 (computer-based) or 570 (paper);

## Department of Marketing

[www2.uta.edu/marketing](http://www2.uta.edu/marketing)

[www2.uta.edu/msmr](http://www2.uta.edu/msmr)

### Areas of Study and Degrees Marketing Research

M.S.

Business Administration

M.B.A., Ph.D.

(See Program in Business Administration)

### Master's Degree Plans

Non-Thesis

### Chair

Carl McDaniel

234 Business, 817-272-2876

### Ph.D. Advisor

James Munch

219 Business, 817-272-2258

### MSMR Director

John Bassler

202 Business, 817-272-2340

Toll Free: 866-296-3256

### Graduate Faculty

Professors

Dickinson, McDaniel, Munch

### Associate Professor

Peterson

### Assistant Professors

Jaramillo, Kleiser, Luo

5. Recommendations: favorable letters of recommendation from three persons qualified to judge the applicant's potential for graduate study and work in marketing research who are not friends or relatives;
6. Commitment to the profession: the applicant shows, by a combination of work experience, prior study, and a written statement of purpose, a suitability for and a commitment to pursue a career in marketing research.

### Denial of Admission

Admission may be denied if the applicant is so far below expectations on any combination of the criteria listed above as to indicate that he or she would not be able to perform at an acceptable level in the MSMR program.

### Probationary Admission

An applicant who fails to meet one or more of the criteria above, but who shows promise based on the other criteria, may be admitted for one semester under the condition that he or she perform well in the program and remove the deficiency within that semester.

### Provisional Admission

An applicant may be admitted provisionally if he or she appears to meet the requirements for unconditional admission but the official documentation is lacking for one or more requirements. Such documentation must be provided within the first semester of study in the program.

## Fellowships and Scholarships

1. Fellowships: Graduate fellowships may be offered to outstanding applicants, using funds provided through the College of Business Administration, based on the unconditional admission criteria listed above. Nominations by director.
2. MSMR scholarships: Funds provided by the member firms on the MSMR Advisory Board support the award of \$1,000 competitive scholarships to students admitted to the MSMR program. The criteria for receipt of these scholarships are the following:

### Eligibility for MSMR Scholarships

#### New Students

- Pending funds availability, scholarships will be awarded to new MSMR students entering the program to study full-time (i.e., at least 9 graduate hours) in the fall or spring semesters. (Students who enter in the summer term are considered to be new students in the fall semester for purposes of scholarship award.)

#### Continuing Students

- Pending funds availability, scholarships will be awarded to continuing students in the fall semester based on a rank ordering of eligible students.

#### Eligibility

- Current GPA at least 3.0, and
- Completion of at least 15 graduate hours in the program, and
- Enrollment in at least 9 graduate hours for the fall term, and
- Submission of application to the Program Director for a continuing MSMR scholarship by August 1, and

- Prior receipt of no more than one competitive scholarship through the program.

## Selection Criteria

### New Students

- Eligible students will be ranked in order according to the following formula:
  - 50\* (GPA of last 60 hours/4.0)
  - + up to 30 points for work experience (see quantification procedures)
  - + up to 20 points for essay (see quantification procedures)
- The maximum score is 100 points. The student with the highest score will receive a rank of "1," the student with the second highest score will receive a rank of "2," etc.
- Students whose rank is less than or equal to the number of scholarships available for new students will receive a scholarship. For example, if there are 10 scholarships available, the students ranked 1-10 will be awarded scholarships.

### Quantification Procedures

- Quantification will be carried out by the MSMR Scholarship Committee, with the MSMR Director *ex officio*.
- Work Experience: score up to 12 points for positions held (e.g., executive, professional specialist, intern, etc.), up to 9 points for relevance of work experience, and up to 9 points for number of years experience.
- Essay: score up to 6 points for grammar, up to 6 points for persuasion, and up to 8 points for content.

### Continuing Students

- Pending scholarship availability (see "Scholarship Administration" below), scholarships will be awarded based on a rank ordering of eligible students by the following criteria, applied progressively as needed to break ties: (1) number of "A" grades earned in MSMR courses (foundation or advanced); (2) GPA in MSMR courses; (3) score on the application essay (see "Quantification Procedures" above).
- Students whose rank is less than or equal to the number of scholarships available for continuing students will receive a scholarship. For example, if there are 10 scholarships available, the students ranked 1-10 will be awarded scholarships.

### Scholarship Amount

- Scholarships will be awarded in the amount of \$1,000 for the academic year.
- In-state tuition rates may apply.

### Application Deadline

- For incoming students, the scholarship application should be received with the person's application to the MSMR program, by the specified deadlines. For continuing students, the application should be received by August 1.

### Scholarship Administration

- Scholarships will be awarded for the full year in the fall semester of each academic year. Scholarships will be paid out in equal installments in the fall and spring semesters.

- For new students entering in the spring semester, scholarships will be awarded only if funds are available. If available, scholarships will be paid out in equal installments in the spring and summer semesters.
- Scholarships will not be awarded in the summer term.
- No student shall be awarded more than 2 competitive scholarships.

### Priority of Awards

1. Continuing students, who meet criteria, registered for the fall semester.
2. New students, who meet criteria, entering the program in the fall semester.
3. New students, who meet criteria, entering the program in the spring semester.

## Degree Requirements

The program is designed primarily for students who have earned a Bachelor of Business Administration (BBA) degree (or equivalent). For this student, the program consists of a minimum of 37 semester hours. Students who do not have a BBA may have to take additional foundation coursework (up to 27 semester hours) to acquire sufficient general business knowledge for effective performance as a marketing research professional. Foundation courses may be waived if equivalent coursework has been completed with a grade of B or better.

The minimum advanced program of 37 semester hours contains 30 hours of marketing courses plus six hours of actual marketing research field work and the 1-hour Professional Development Seminar. The required curriculum is as follows:

1. Foundation Courses (27 semester hours)
  - BUSA 5303 Quantitative Analysis for Business
  - INSY 5310 Introduction to Computers
  - ACCT 5301 Accounting Analysis I (Financial)
  - ACCT 5302 Accounting Analysis II (Managerial)
  - ECON 5311 Economic Analysis II (Micro & Macro)
  - MARK 5311 Marketing
  - MANA 5312 Management
  - FINA 5311 Business Financial Management
  - BUSA 5325 Advanced Statistical Methods
2. Advanced Courses (37 semester hours)
  - MARK 5323 Buyer Behavior and Creative Problem Solving
  - MARK 5327 Research for Marketing Decisions
  - MARK 5328 Product Management
  - MARK 5336 Advanced Research Analysis
  - MARK 5337 Marketing Information Management
  - MARK 5338 Qualitative Research
  - MARK 5139 Professional Development Seminar
  - MARK 5340 Marketing Strategy
  - MARK 5399 Advanced Topics in Marketing Research
  - MARK 5396 Marketing Research Internship I
  - MARK 5397 Marketing Research Internship II
  - MARK 6305 Marketing Models I
  - BUSA 5375 Advanced Business Communication Theory and Practice

## Marketing Research Internship

The Marketing Research Internship (MARK 5396 and MARK 5397) comprises 24 weeks of paid, full-time work experience in either a marketing research company or a corporate marketing research department. Sponsoring companies will be approved by the marketing research program advisor. During the internship, the student will have primary responsibility for at least one marketing research study. At the completion of the internship, the student will present a paper to the graduate faculty summarizing his or her internship experiences and the results of the research study. In special situations, and with the approval of the program advisor, a one-year, part-time internship may be substituted for the full-time internship.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Marketing (MARK)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5139. PROFESSIONAL DEVELOPMENT SEMINAR (1-0).** This course exposes MSMR students to the wide variety of career opportunities available within the marketing research industry. It provides students with information, awareness, tactics and practice in conducting a professional employment search and a professional interview, as well as handling offer negotiations. It should be taken in the final year of coursework. (Graded on a Pass/Fail basis).

**5199, 5299, 5399. ADVANCED TOPICS IN MARKETING RESEARCH.** 5199 (1-0), 5299 (2-0), 5399 (3-0). Presentation and analysis of cutting edge topics in marketing research. Prerequisite: consent of Program Director.

**5311. MARKETING (3-0).** Survey of activities involved in marketing. Emphasis is on developing a managerial point of view in planning and evaluating marketing decisions of the firm. Analyzes decisions with respect to products, price, channel, and promotional variables and considers questions relating to cost efficiency, demand, social responsibility and regulations.

**5320. BUYER BEHAVIOR (3-0).** Examines the theoretical and empirical material on the individual and group behavior of people performing in the consumer role. Topics covered include perception,

learning, attitude formation and change, personality, culture, social class, and reference groups. Behavioral science data provides a basis for the explanation of consumer behavior and the integration of these findings into current marketing practices. Prerequisite: MARK 5311 or equivalent.

**5323. BUYER BEHAVIOR AND CREATIVE PROBLEM SOLVING (3-0).** Half of the course will involve examining the theoretical and empirical material on the individual and group behavior of people performing in the consumer role. The other half of the course will involve discussing the relationship between the creative process and marketing decisions. Students develop a repertoire of techniques to expand their creativity and learn to enhance their flexibility in generating divergent, dramatic solutions to problems. Prerequisites: MARK 5327 AND MKRS major.

**5326. INTEGRATED MARKETING COMMUNICATION (3-0).** A managerial approach to coordinating all promotional activities, including direct marketing, advertising, sales promotion, personal selling, public relations, publicity and packaging to produce a unified market-focused message. Message development, placement and timing are examined within the context of the role each type of promotion plays in marketing strategy development. Additional topics examined include media definition and analysis, the communication process, legal and ethical considerations, and budgeting. Prerequisite: MARK 5311 or equivalent.

**5327. RESEARCH FOR MARKETING DECISIONS (3-0).** Overview of information needs of the marketing decision-maker. Emphasis on methods and techniques that may be employed for the collection and analysis of primary data. Major topics include design of research projects, generating primary data, questionnaire design, samplings for survey research, experimental design, controlling data collection, and data analysis. Prerequisites: MARK 5311 and BUSA 5301 or equivalents.

**5328. PRODUCT MANAGEMENT (3-0).** Management of the firm's product or service offerings. Topics include new product development, new product screening, evaluation of existing products, product line and mix analysis, product abandonment decisions, the brand manager's role, the new product planning department, and others. Emphasis on the development of meaningful criteria for decision-making in the product area and on the development of information systems to suggest, screen, and monitor products. Prerequisite: MARK 5327 or equivalent.

**5329. SALES AND SALES MANAGEMENT (3-0).** Examines the skills required for successful personal selling and sales management in today's world, with emphasis on industrial markets. Discusses the links between business trends and the resulting need for new approaches to the sales management challenges of planning, implementing, and evaluating a sales program. Special topics include the strategic importance of the sales force, customer/supplier partnering, multi-function collaboration, technology's role in altering traditional customer-access channels, the organization of the sales function for profitability vs. revenue, and the development of effective major account strategies.

**5330. SERVICE MARKETING MANAGEMENT (3-0).** Addresses marketing theory and applications in health care, financial, and other service industries. Focus is on solving marketing problems unique to service organizations. Prerequisite: MARK 5311.

**5331. INTERNATIONAL MARKETING (3-0).** Management of marketing in international business. Includes marketing research, pricing, promotion, and distribution in the international environment. Examines marketing problems arising from various degrees of foreign

involvement (exports, licensing, foreign subsidiaries). Prerequisite: MARK 5311 or equivalent.

**5332. BUSINESS-TO-BUSINESS MARKETING (3-0).** Marketing strategies for businesses targeting other businesses. Included are frameworks for analysis of marketing opportunities. Business-to-business e-commerce is examined. Prerequisite: MARK 5311 or equivalent.

**5334. STRATEGIC INTERNET MARKETING (3-0).** Through theoretical investigation, brainstorming, and case analysis, students develop the skills and strategies that are necessary for effective marketing via electronic media. With particular emphasis on Internet-based media, topics include developing an online corporate identity, online market research, interactive and database Web site strategies, creating and maintaining Web site content, proactive marketing tactics, analysis of Web site statistics, measuring online marketing results, and development of a strategic Internet marketing plan. Prerequisite: MARK 5311.

**5335. RETAILING, FRANCHISING, AND ENTREPRENEURSHIP (3-0).** Course offers exposure to elements of retail management, franchising, and entrepreneurship, including planning, promotion, pricing, and merchandising. Prerequisite: MARK 5311 or equivalent.

**5336. ADVANCED RESEARCH ANALYSIS (3-0).** Focuses on problems of data analysis in marketing research. Considers application of multivariate statistics, including multiple regression, discriminant analysis and factor analysis to marketing research problems. Considerable time also devoted to multi-attribute preference models such as conjoint analyses. Prerequisite: MARK 5327 or equivalent.

**5337. MARKETING INFORMATION MANAGEMENT (3-0).** Course focuses on various types of marketing data bases and computer-based research systems designed for the collection, storage, usage, and reporting of disaggregated data. Topics include single-source data, geodemographics, and micro-merchandising systems. Case studies and data analysis projects are utilized. Prerequisite: MARK 5327 and consent of program advisor.

**5338. QUALITATIVE RESEARCH (3-0).** Examines the nature of qualitative research and its growing value to the marketing research community. The role of focus group interviewing, types of focus groups and their conduct are extensively explored. Other topics include depth interviewing, projective techniques, observational research, the delphi method, environmental forecasting and futuring. Prerequisite: MARK 5327 and consent of program advisor.

**5340. MARKETING STRATEGY (3-0).** A case course designed to give the student an opportunity to utilize the managerial and analytical tools that he or she has acquired. Uses case studies which require a realistic diagnosis of company problems, development of alternative courses of action, and the formulation of specific recommendations. Prerequisite: MARK 5311 and six hours of advanced marketing or consent of instructor.

**5182, 5282, 5382. INDEPENDENT STUDIES IN MARKETING.** Extensive analysis of a marketing topic. Graded P/F/R. Prerequisite: consent of faculty member and department chair.

**5396. MARKETING RESEARCH INTERNSHIP I (3-0).** The internship involves part-time or full-time training and work experience in a company approved by the MSMR program advisor. A grade of R may be assigned at the completion of the course.

**5397. MARKETING RESEARCH INTERNSHIP II (3-0).** This is a continuation of Internship I and involves part-time or full-time work experience in a company approved by the MSMR program advisor.

The student will be assigned primary responsibility for at least one marketing research project during Internship I or II. At the completion of the course, the student will present a research paper to the MSMR faculty. Course is graded on a pass/fail basis.

**6192, 6292, 6392. INDEPENDENT STUDY IN MARKETING (3-0).** Doctoral level analysis of marketing topic. Graded P/F/R. Prerequisite: consent of faculty member. May be repeated when topic changes.

**6302. ADVANCED CONSUMER BEHAVIOR (3-0).** Advanced study of current research underlying individual and group behavior of consumers and industrial buyers. Theories from the behavioral sciences will be applied to consumer behavior from descriptive, predictive, and normative perspectives.

**6305. MARKETING MODELS I (3-0).** Study of basic models of market and consumer behavior with particular attention to the use of classical statistical methods such as ordinary and generalized least squares, factor analysis, discriminant analysis and correspondence analysis, cluster analysis, and canonical correlation. Applications include perceptual mapping, multiattribute modeling, conjoint analysis, and product planning models. Prerequisite: BUSA 5325 or consent of instructor.

**6310. MARKETING STRATEGY AND MANAGEMENT (3-0).** Examination of latest theories in corporate and marketing strategies. In-depth review and analysis of latest theories and research in product/service development, pricing, promotion, and distribution.

**6327. ADVANCED MARKETING RESEARCH METHODS (3-0).** Course deals with the wide variety of marketing research methodologies other than experimental research. It focuses on data analysis only to the extent that it impacts on the design of the associated research method. Advanced topics include hybrid and adaptive conjoint analysis, discrete choice models, adaptive perceptual mapping, Lisrel modeling and Web-based research designs. Prerequisites: MARK 5336 and MARK 6305.

**6331. ADVANCED GLOBAL MARKETING THEORY (3-0).** Examines the antecedents and consequences of global marketing. Includes the politics of global marketing, emerging global strategies, the latest concepts of market entry and development, and global marketing performance and evaluation.

**6390. TOPICS IN MARKETING (3-0).** Advanced doctoral level work in special topics in marketing. May be repeated when topics vary.

# The College of Education

Dean: Jeanne M. Gerlach, Ph.D., Ed.D.

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## Mission and Philosophy

The mission of the College of Education is to develop and deliver education programs that ensure the highest teacher, administrator, and health, performance and physical education preparation, and to be a recognized contributor in the field of educational research and practice through effective teaching, quality research, and meaningful service. The College of Education is committed to the advancement of teaching and learning in all educational environments, at all levels, and for all students.

## History and Overview

In 1979, The Center for Professional Teacher Education, now the College of Education, began offering coursework at the graduate level. In the late 1980s, a Master of Education and Teaching degree (M.Ed.T.) was approved. This degree served teachers who wanted the opportunity to extend their knowledge base in education and related fields with graduate coursework. The degree enabled students to combine graduate coursework in education with study in an academic discipline related to their teaching field or specialization. Its success led to the expansion of education offerings to include additional certifications in Reading and Educational Administration as well as endorsements in Bilingual Education (BIL), English as a Second Language (ESL), and Gifted and Talented (G/T).

As one of only a few Texas universities authorized to offer post baccalaureate teacher certification at the graduate level, the College of Education began offering graduate level teacher certification with an M.Ed.T. in the summer of 1998. With expansion of program offerings, the M.Ed.T. no longer met the needs of all degree-seeking students. In 1999, the College of Education added two new master degree programs, a Master of Education (M.Ed.) in Educational Administration and a Master of Education (M.Ed.) in Curriculum and Instruction.

The M.Ed.T. is now offered exclusively to students seeking teacher certification (early childhood – grade 4, middle level, and secondary) at the graduate level. The M.Ed. in Educational Administration is available to students pursuing the Principal Certificate (Mid-Management). And, the M.Ed. in Curriculum and Instruction (C. & I.) is for educators wanting to extend their knowledge in education and related fields. The M.Ed. in C. & I. also serves students wanting to earn a master's degree along with Reading Specialist Certificate and the Master Reading Teacher Certificate. An endorsement in teaching Bilingual Education and English as a Second Language may also be added to the M.Ed. in C. & I. New certification offerings are currently being developed such as School Counseling. Other certifications available include Technology Applications and one for superintendents.

A collaborative program between the School of Urban and Public Affairs and the College of Education provides the opportunity for students to earn a doctor of philosophy (Ph.D.) in Public and Urban Administration with an emphasis in education. For more information, see the entry for the School of Urban and Public Affairs in this catalog and contact Dr. Charles Funkhouser in the College of Education.

With the advancement in technology, many graduate courses are available via the Internet with additional courses being added each semester. The College of Education has an enrollment of more than

1,000 students with approximately 600 students pursuing graduate level degrees certificates.

## Scholastic Activity and Research Interests of the Faculty

The faculty of the College of Education strives to model the characteristics of the most competent professional educators for all students aspiring to membership in the education and exercise, sport and health studies professions. Faculty members in the College of Education have consistently been recognized for their excellence in teaching in the University and beyond. They have received numerous honors, including The University of Texas System Chancellor's Council Teaching Award, election to U. T. Arlington's Academy of Distinguished Teachers, and the Piper Professor award at the state level. They have also served as guest lecturers at universities across the country. In addition, numerous faculty have received recognition for their published scholarship and professional contributions.

Faculty scholarship is also valued by the College of Education for its potential impact on the increased effectiveness of teaching and learning in professional education preparation programs and in the public and private school setting. Scholarly and research activities cover a variety of areas represented by the expertise of each individual faculty member.

Evidence of service to the College of Education, the University, the community and the practicing profession is also expected of the faculty. This includes service to local constituencies such as school districts, education service centers, parent-teacher groups, professional associations, and/or other agencies and organizations dedicated to the improvement of teaching and learning, as well as involvement in outreach programs, community events, civic leadership, and the promotion of alumni support and involvement. The extensive service activities of faculty members in the various departments have garnered additional awards from the University, the community, the state and a variety of professional organizations.

## Department of Curriculum and Instruction

Research interests and publications include the areas of multicultural education, current issues in curriculum and instruction, aggression and violence in young children, classroom management, innovations in math and science education, stress management in learning, gender issues in the classroom, and reducing math anxiety. Grants for expanding the knowledge of teacher preparation and the knowledge base of middle school science teachers have been repeatedly funded. In the literacy field, faculty have researched and published articles and book chapters on emergent literacy in young children, literacy policy making, reading and writing across the curriculum, literature-based teaching in English as Second Language classrooms, the use of basal reading materials and children's literature in teaching children to read, and structural analysis comparisons of children's literature classics. In the area of early childhood education, faculty are researching historical and theoretical connections in the lives of Piaget and Montessori, developmentally appropriate practices, the incidences of rage and anger in young children in day care settings, and teacher certification standards.



## Department of Educational Leadership and Policy Studies

In Educational Administration, research activities and publications have focused on school leadership trends, developing collaboratives between university, public, private and charter schools, fostering creativity in learning organizations, and studying school policy, governance, and finance issues.

## Department of Kinesiology

Faculty research interests and publications include the study of respiratory distress during maximal work, metabolic cost of free weight circuit training, the developmental kinematics of young females overarm throwing, and the study of hyperbaric oxygen effects on treatment of diseases. Other research includes the study of critical power in relationship to cycling time performance, wheelchair sport performance enhancement, the in vivo 4-Androstene-3, 17-dione and 4-Androstene-3, 17-diol supplementation in young males, and body composition of postmenopausal women according to spine (AP L2-4) bone mineral density. Additionally, Kinesiology faculty publish research on the context-based teaching-learning processes within preservice physical education lessons and the impact of curricular interventions on outcomes.

## Special Programs and Opportunities

The College of Education offers a variety of special opportunities for learning and professional growth for graduate students. An educational technology center, a variety of clinical field experiences, visiting authors and experts, membership in professional organizations, and specialized library resources are some of the special programs and opportunities that enrich students.

- A special technology classroom designed particularly for education students offers access to computer use and technology training, including the Internet.
- Several graduate courses offer links to field experiences that greatly enrich the course content. This includes regular observation and participation in PK-12 classrooms, individualized administrative internships for students seeking Principal Certification, and summer literacy clinics that bring children to campus to work with graduate students earning the Reading Specialist Certification.
- Graduate courses routinely host authors and experts in various areas to share their experiences and insights. Guests include outstanding professors from other area universities, award-winning educators, and others.
- Student organizations offer graduate students leadership opportunities.
- Student awards, scholarships, and graduate assistantships are available to graduate students who qualify.
- To support College of Education programs, the Library houses a Curriculum Collection and a Juvenile Collection for student use in conjunction with their education coursework.
- The Department of Kinesiology presents several lecture series and seminars, including the Anderson Sports Performance Lecture Series, the UTA/American College of Sports Medicine Lectures, the Exercise Science Seminars, the American College of Sports Medicine Health Fitness Instructor Workshop, the American College of Sports Medicine Health Fitness Instructor Certification Examination and the Dance Ensemble Concert.
- The College of Education offers creative and flexible scheduling

of graduate coursework to meet the needs of professional educators, including Saturday, weekend, interim and evening classes year-round.

- Distance learning via the Internet is available for a variety of courses.

## Teacher Career Services

Education students are assisted in securing positions as teachers and administrators through the efforts of the Office of Teacher Career Services. The office maintains good working relationships with area school districts, working in partnership to match job openings with qualified applicants completing their professional training at U.T. Arlington. Students are assisted in writing effective résumés and developing exemplary interview skills. The office sponsors two on-campus Teacher Career Days each year and an online database of currently available positions and links to similar information elsewhere within the state and across the nation. Contact: Dr. Frank Gault, Director, 817-272-3259.

## Community College Articulation Agreements

Earning a four-year degree has been simplified for students transferring to U.T. Arlington from a number of community colleges as a result of articulation agreements. Students who enter either the Child Development or Professional Educator Program at a participating community college may complete their associates degrees while at the same time earning university credit for designated courses required for a bachelor's degree and either Early Childhood - Grade 4 or Early Childhood -Grade 4/Bilingual certification at U.T. Arlington. Contacts: Dr. Carol Sue Marshall, Early Childhood Education, 817-272-2842, and Dr. Luis Rosado, Bilingual Education, 817-272-7567.

## Online Master's Degree

The College of Education offers graduate students convenience and quality with a master's degree in Curriculum and Instruction available entirely over the Internet. This program option includes cutting-edge graduate courses that can also lead to three Texas professional credentials: Reading Specialist, Master Reading Teacher Certifications and English-as-a-Second Language Certification. Students from as far away as New York, Georgia, and Nebraska have enrolled in Internet courses through this award-winning program. Contact: Nancy L. Hadaway, 817-272-2240

## Troops to Teaching Program

For military personnel, the T3 Program offers a five-course sequence of graduate-level education courses for individuals with baccalaureate degrees seeking a Texas Secondary Teacher Certificate. All courses in the program are available via the Internet. Applicants for the program must meet certain U.T. Arlington Graduate School and College of Education admission standards, as well as satisfactorily completing a required field experience. Contact: Dr. Jeannine Hirtle, Coordinator, 817-272-7568.

## College of Education Centers Certification and Advising Center

The Certification and Advising Center helps College of Education students succeed by providing the information and support services needed to achieve their academic and career goals. The Certification Officer and the Academic Advisors are available to assist students in various stages of preparing for or furthering their careers as educators and school administrators. The center provides information and advising regarding College of Education admission requirements and degree plan options, as well as the academic content areas, field-based

experiences, state examinations, and application procedures needed to obtain teacher, principal, superintendent, and special program certification in Texas. Information on nontraditional certification options and additional support in preparing for the state exams are also available. Contact: Dr. Louann Schulze, Assistant Dean for Student Affairs, 817-272-2956.

#### Office of Field Experiences

Prospective teachers apply their knowledge of content and pedagogy during both a field-based internship and a residency semester arranged through the Office of Field Experiences. The internship practicum gives teacher education students the opportunity to observe and interact with diverse student populations in variety of formal and informal educational settings at locations throughout the Metroplex. During the residency practicum, these preservice teachers refine their teaching skills by working directly with students in classrooms at designated public schools in the area, guided by a cooperating mentor teacher and supervising university faculty. Contact: College of Education, 817-272-2591.

#### The Office of Development

The Office of Development, Grants, and Contracts is responsible for planning, managing, and directing the College of Education's efforts to attract supplemental funding from federal and state governments, corporations, foundations, groups, and individuals to support and enhance the school's strategic initiatives, academic programs, service activities, and research efforts. The office offers technical assistance to College of Education faculty in the identification, development, and submission of grant proposals and requests for financial assistance in support of individual research projects and program development initiatives. In addition, the office coordinates fund-raising events for the College of Education. Contact: College of Education, 817-272-2591.

#### Center for Educational Technology

The College of Education and U.T. Arlington are committed to ensuring that all learners have equitable opportunities to employ a variety of technological tools to enhance the learning process. Educational technology provides the opportunity to offer education anywhere, any time for everyone. The Center for Educational Technology addresses statewide technology initiatives for teachers and students in the State of Texas. The center supports the faculty and students in their efforts to successfully use and understand the many new technology tools and strategies. The Center for Educational Technology also assists faculty in the development and implementation of interactive technologies, which increases the effectiveness of their pedagogy. Contact: Dr. Kathy Canaday, Director, 817-272-2853.

#### Department Centers

##### Center for Bilingual Education

Created in response to the growing number of English language learners, the Center for Bilingual Education strives to increase the number of qualified bilingual and ESL teachers in Texas through bachelor and masters-level degree programs. The center provides technical support to school districts in the areas of bilingual and ESL education, as well as preservice and inservice teacher training in the areas of the Bilingual ExCET, the Texas Oral Proficiency Test, cross-cultural communication, and effective teaching practices for language-minority students. Contact: Dr. Luis Rosado, Director, 817-272-7567.

#### Center for Science Education

The College of Education and the College of Science work collaboratively through the Center for Science Education to increase the number of new and existing educators in both formal and informal settings who are adequately prepared to deliver challenging, standards-based science, mathematics, and technology (SMT) instruction through the application of new, research-validated models for teaching and learning. The center also coordinates the University's outreach to school districts, community-based organizations, and local businesses in support of efforts to guide all PreK-16 students, especially those in urban settings, in achieving higher standards of learning in SMT. Contact: College of Education, 817-272-2591.

### Programs

Graduate work in the College of Education at U.T. Arlington may lead to the following degrees and certifications:

#### Degrees

Master of Education in Teaching (M.Ed.T.)  
Master of Education (M.Ed.) in Curriculum and Instruction  
Master of Education (M.Ed.) in Educational Administration

#### Certifications

Early Childhood-Grade 4 Teacher  
Early Childhood-Grade 4 Bilingual Teacher  
Middle Level Teacher (Grades 4-8)  
Secondary Teacher (Grades 8-12)  
Reading Specialist  
Master Reading Teacher  
Master Technology Teacher  
Principal  
Temporary Principal  
Temporary Assistant Principal

#### Endorsements

Bilingual Education  
English as a Second Language  
Gifted and Talented

In addition, the College of Education offers a joint doctoral program with the School of Urban and Public Affairs.

## Programs

The Department of Curriculum and Instruction currently offers the Master of Education in Teaching (M.Ed.T.) and the Master of Education in Curriculum and Instruction (M.Ed.) Additional endorsements and specialty areas are also offered including: Bilingual Education (BIL), English as a Second Language (ESL) and Gifted and Talented. Distance learning opportunities in all degree programs are available for those interested in Internet and video conferencing course delivery (see section on Distance Learning Options). Students pursuing a master's degree are required, with the assistance of the Graduate Advisor and graduate faculty, to complete a tentative program of work prior to completing 12 hours of graduate work. This program of work is filed in the Graduate School and may be modified as needed. All master's degrees in Curriculum and Instruction are comprised of a minimum of 36 semester hours and are non-thesis. Candidates for master's degrees are required to submit a final program of work and submit a comprehensive project their final semester of coursework.

## Objective

The Master of Education in Teaching (M.Ed.T.) degree is designed for those wishing to pursue initial teacher certification at the graduate level. The Master of Education in Curriculum and Instruction (M.Ed.) degree provides opportunities for those interested in developing effective teaching, research, and leadership skills that are congruent with an ever-expanding theoretical knowledge base in the field. The M.Ed. enables teachers to specialize in advanced coursework in their teaching fields and other professional certification areas designed to meet a variety of professional goals. Both degrees help prepare graduates to reflect upon their own teaching as well as on the state of education as a whole and to better understand the linkage between the theory and practice of teaching. Each student's program of study is planned individually and provides academic and/or pedagogical specialization within the context of the general field of education. Graduate faculty in the College of Education as well as those in departments and in the colleges throughout the University work closely with students in formulating study plans that meet the students' objectives and individual goals for professional growth. Each program of instruction includes both professional and academic components.

## Admission Requirements

### Unconditional Admission

- Current GRE score of 400 on quantitative and 500 on verbal sections of the GRE
- 3.0 GPA during the last 60 hours of undergraduate coursework and a 3.0 average on all graduate work
- 3 letters of reference on file

### Probationary Admission

Applicants who score less than 400 on the quantitative and 500 on the verbal sections of the GRE will be considered for probationary admission on the basis of the following

- 3.0 GPA during the last 60 hours of undergraduate coursework AND a 3.0 average on all graduate work
- Professionally relevant experience
- Writing sample evaluated by the COEd Graduate Studies Committee with a pre-selected evaluation scale. When available, the GRE writing sample will be required for probationary admission.

## Department of Curriculum and Instruction

[www.uta.edu/coed/curricandinstruct](http://www.uta.edu/coed/curricandinstruct)

### Areas of Study and Degrees

Early Childhood - Grade 4 Teacher Certification  
Middle Level (Grades 4-8) Teacher Certification  
Secondary Teacher Certification (Grades 8-12)  
All-Level Teacher Certification  
M.Ed.T.  
Reading Specialist Certification  
Master Reading Teacher Certification  
Master Technology Teacher Certification  
Bilingual Education Endorsement  
English as a Second Language Endorsement  
Gifted and Talented Endorsement  
Technology  
M.Ed.

### Master's Degree Plans

Non-Thesis

### Chair

Ruth Davis  
5B Trimble, 817-272-2448  
[davis@uta.edu](mailto:davis@uta.edu)

### Graduate Advisor

Nancy Hadaway  
414 Hammond, 817-272-2240  
[hadaway@uta.edu](mailto:hadaway@uta.edu)

### Graduate Faculty

Professors  
Crow, Gerlach, Hadaway, Reinhartz

### Associate Professors

Davis, Hirtle, Leffingwell,  
Marshall, Rosado

### Assistant Professors

Alcala, Kribs-Zaleta, Tice,  
Wallace, Weaver, Wisell

**Terms of Probation upon Acceptance:** All students admitted under probation status will be required to earn a 3.5 GPA during the first 12 hours of graduate coursework in the program.

### Provisional Admission

An applicant unable to supply all required documentation prior to the admissions deadline, but who otherwise appears to meet admission requirements, may be granted provisional admission.

### Deferred Admission

An applicant's admission may be deferred when a file is not complete or when denying admission is not appropriate.

### Denied Admission

An applicant may be denied admission if the conditions for unconditional and probationary admission have not been met.

## Eligibility for Scholarships/Fellowships

To be eligible, candidates must be new students coming to UTA in the fall semester, must have a GPA of 3.0 in their last undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain their fellowships.

## Distance Learning Options

Many graduate courses in Curriculum and Instruction are offered on campus as well as over the Internet and via video conferencing for distance learning. The complete M.Ed. in Curriculum and Instruction with an emphasis in Reading is available online. (See the Graduate Advisor for current course offerings.) For the distance learning option, students enroll in the Internet course and complete all course requirements from the convenience of their home or school computers (some Internet-delivered courses require students to attend an initial in-person orientation). Only basic computer competence is necessary (logging on to a Web site, sending and receiving e-mail). Students need a reliable Internet connection and a consistent e-mail address. All assignments are submitted electronically according to an established calendar of deadlines. Students proceed at their own pace in a highly interactive learning environment.

## Degree Requirements

### Master of Education in Teaching (M.Ed.T.) with Teacher Certification

The Master of Education in Teaching (M.Ed.T.), a 36-hour non-thesis degree, is a unique and specialized degree that enables a student holding a baccalaureate degree to pursue initial teacher certification and use those hours toward requirements of a master's degree. In addition to being accepted into the Graduate School, students must also be admitted into the Teacher Certification program (consult a teacher certification advisor for current admittance requirements). For teacher certification, students must meet state requirements for their teaching field(s) or specialization and complete the graduate-level coursework for early childhood – grade 4, middle level, secondary, or

early childhood – grade 4 bilingual certification. They must also fulfill the Residency requirements and pass the appropriate certification exams (consult a teacher certification advisor for current certification information). Up to 18 hours (or more with program director approval) of teacher certification coursework may be applied to the total 36 hours required for completion of the M.Ed.T; however, students must complete teacher certification courses and pass the appropriate certification exams before proceeding to courses that apply to the master's degree. Students may earn teacher certification without completing a master's degree. See the College of Education Web site at [www.uta.edu/coed](http://www.uta.edu/coed) for more details on all programs.

### Master of Education (M.Ed.)

The Master of Education in Curriculum and Instruction (M.Ed.), a 36-hour non-thesis degree, is a broad-based degree that enables students to pursue academic and professional goals within an individualized program. Following are a few of the possible master's degree options.

#### M.Ed. with an Open Option

One plan is referred to as the "Open Option." This particular master's degree option is ideal for students desiring a pedagogical foundation in education in addition to an 18-hour concentration of a particular resource area or academic discipline. A common core of 9 hours of graduate education coursework in instructional strategies, research, evaluation, and technology, and a 6-hour support area in curriculum design and instructional leadership are required. Students also choose from a variety of certifications available through the School of Education to incorporate into their master's degree plan (see the section on Professional Certifications), or they may choose to incorporate up to 18 hours of graduate coursework from disciplines outside of Education. For example, a degree plan for a student who desires TESOL (Teaching English to Speakers of Other Languages) certification would include the required 18 hours of pedagogical coursework in Education along with the 18 hours of Linguistics coursework from the Program in Linguistics. The Graduate Advisor works with students in creating a degree plan that meets their professional needs and goals. (Note: The Graduate Advisor and graduate faculty must approve all coursework included in a degree plan.) This degree does not require a student to hold a teacher certificate. See the College of Education Web site at [www.uta.edu/coed](http://www.uta.edu/coed) for more details on the program.

#### M.Ed. with an Emphasis in Reading (available online)

One of the most popular M.Ed. degree plan configurations is the M.Ed. in Curriculum and Instruction with the Reading Specialist Certificate, Master Reading Teacher Certificate, and English as a Second Language added to it.

This program requires 36 credit hours (12 courses). Once you have successfully completed all coursework, you will graduate with a Master of Education in Curriculum and Instruction. In addition, if you pass the appropriate TExES tests, you will also have the Reading Specialist Certification, the Master Reading Teacher Certification, and/or the English as a Second Language Endorsement. The ESL is a 12-hour, four course program that can be taken as part of this master's degree plan or separately in preparation for the ESL Endorsement TExES test.

This degree option is available online through UT TeleCampus. For more information, please visit <http://www.telecampus.utssystem.edu/programs/Medread/read.html>.

## Professional-Level Certifications

The Department of Curriculum and Instruction offers graduate-level programs leading to professional certificates. Certifications include Initial Teacher Certification (Early Childhood – Grade 4, Middle Level, Secondary, and All-Level) and the Reading Specialist and Master Reading Teacher Certification, and Master Technology Teacher Certification. Endorsements include English as a Second Language (ESL), Bilingual (BIL) and Gifted and Talented. The graduate-level coursework required for these programs may be applied toward a master's degree (M.Ed.T.). The Graduate Advisor works with the student to build an individual degree plan that incorporates one or more of these certification areas. See the College of Education Web site at [www.uta.edu/coed](http://www.uta.edu/coed) for more details on these programs.

### Initial Teacher Certification

Students holding a baccalaureate degree may pursue initial teacher certification at the graduate level. Students must be admitted to the Graduate School as a master's-degree-seeking student (students may elect to complete certification only) and be admitted to Teacher Certification in the College of Education (see a Teacher Certification advisor for current requirements). Up to 18 hours (or more with program director approval) of graduate-level teacher certification hours may be applied toward an M.Ed.T. Students must also complete the residency/practicum requirements and pass the appropriate TExES exams. Candidates for Teacher Certification must also meet all state requirements for coursework in their teaching field/academic specialization. Note, certification students must be advised and cleared to take teacher certification courses through Teacher Certification Advising. See the College of Education Web site at [www.uta.edu/coed](http://www.uta.edu/coed) for more details on the program.

### Master Reading Teacher Certificate

This certification focuses on the needs of the multicultural and multilingual classrooms of today. To qualify for the Master Reading Teacher Certificate, students must complete nine semester credit hours and pass the Master Reading Teacher TExES. See the College of Education Web site at [www.uta.edu/coed](http://www.uta.edu/coed) for more details on the program.

### Master Technology Teacher (MTT) Certificate

The Master Technology Teacher (MTT) Certification is designed to produce teachers who will work with other teachers and students to increase the use of technology in the classroom. The MTT certification is a master-level certification. Candidates must hold an SBEC Technology Applications or Technology Education Certificate, or have a minimum of three years teaching experience in Texas Schools and have a current Texas teacher's certificate. Candidates must complete the MTT preparation program. Candidates must pass the MTT certification exam. See the College of Education Web site at <http://www.uta.edu/soe/educationtech/mtt/index.htm> for more details on the program.

### Reading Specialist Certification

Teachers interested in focusing on the important area of reading may pursue the Reading Specialist Certificate, an all-level (K-12) certificate. This unique program focuses on the needs of the multicultural and multilingual classrooms of today by integrating the requirements

for ESL and/or Bilingual Education Endorsements into the total reading program with no supplementary coursework required. To qualify for the Reading Specialist Certificate, students complete a master's degree, hold a valid Texas teacher certificate, document three years of acceptable classroom teaching experience, and pass the Reading Specialist TExES. Those who already hold a master's degree and who are seeking only the Reading Specialist Certificate are not required to complete the 6-hour Common Core. See the College of Education Web site at [www.uta.edu/coed](http://www.uta.edu/coed) for more details on the program.

### English as a Second Language (ESL) Endorsement

The English as a Second Language (ESL) certification prepares candidates to teach children from all cultural and language backgrounds (speakers of Spanish, Vietnamese, etc.), and is required for those teachers working with students in grades PK-12 whose first language is not English. (No foreign language background is required for the ESL certificate.) The ESL endorsement may be added to any valid Texas teacher certificate. Students are required to take four required courses in any sequence, complete a practicum in an ESL classroom or one year of successful teaching experience in an ESL or Bilingual Education program approved by the Texas Education Agency, and pass the ESL TExES. (The four courses may be applied toward a master's degree and to the Reading Specialist Certificate.) See the College of Education Web site at [www.uta.edu/coed](http://www.uta.edu/coed) for more details on the program.

### Bilingual Education (BIL) Endorsement

Those teachers who are fluent in Spanish and wish to specialize in bilingual education will want to add the Bilingual Endorsement to their initial certification. The required 12 hours of coursework may be incorporated into a master's degree program developed in consultation with the Graduate Advisor and graduate faculty. Students are required to take four courses and provide documentation of one year of successful teaching experience in a bilingual setting approved by the Texas Education Agency. Candidates must also pass the TExES in Bilingual and the TOPT for language proficiency. See the College of Education Web site at [www.uta.edu/coed](http://www.uta.edu/coed) for more details on the program.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Bilingual/ESL/Early Childhood Program (BEEP)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5318. FOUNDATIONS IN BILINGUAL EDUCATION (3-0).** Analyzes the development of bilingual education in the United States. Introduces bilingual education program models and discusses research findings on their effectiveness.

**5321. ESL METHODS FOR YOUNG LEARNERS (3-0).** Compares first and second language acquisition processes and identifies best teaching practices to meet the needs of English language learners. Analyzes elements from Spanish that can affect the acquisition on literacy in English.

**5361. LANGUAGE LEARNING: EDUCATIONAL PERSPECTIVES (3-0).** Deals with the relationship between first and second language acquisition and literacy, dialect, linguistics, culture; nature and definition of language; overview of linguistic science and language with pedagogical applications. May be cross-listed with READ 5361. Students may not take both BEEP 5361 and READ 5361.

**5362. LITERACY INSTRUCTION IN ESL/BILINGUAL SETTINGS (3-0).** Translation of theory into practice stressing various methods and techniques for teaching ESL/bilingual students with emphasis on techniques for oral language development, reading and writing. A comparison/contrast of the various methods, their specifics, and when and how to use them for various instructional objectives as well as the relationship of language development, culture, and conceptual processes to language teaching. May be cross-listed with READ 5362. Students may not take both BEEP 5362 and READ 5362.

**5363. LITERACY DEVELOPMENT IN ENGLISH AND SPANISH (3-0).** The development of literacy for bilinguals with specific emphasis on the rationale, methods, and materials for literacy instruction in the home language of the child. A focus on assessing and supplementing first language literacy materials and the successful transition from first language literacy instruction to literacy instruction in English.

**5364. LITERACY INSTRUCTION IN SPANISH IN THE CONTENT AREAS (3-0).** Content area instruction in the home language of the child along with methods and materials utilized to teach the content areas in the students' first language. Issues of transition from home language instruction in the content areas to English language instruction.

**5391. INDEPENDENT RESEARCH (3-0).** Research for course substitution or a topic agreed upon between the student and instructor. May be repeated for credit with permission.

## Education (EDUC)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5300. CONTEMPORARY CONCERNS IN AMERICAN EDUCATION (3-0).** An overview of historical foundations, issues and trends in American schools, including application of instructional technology. Focus on developmental characteristics of the whole child as a learner will be explored through research.

**5305. CURRICULUM DESIGN, IMPLEMENTATION, AND EVALUATION (3-0).** An examination of theory and research in

curriculum development, implementation, and evaluation. Emphasis on current trends in the content areas.

**5309. ADVANCED INSTRUCTIONAL STRATEGIES (3-0).** A study of advanced models of teaching including concept attainment, inductive thinking, inquiry, case study, role play, take-a-stand, synectics, scamper, simulation games, etc. Research on the effectiveness of the models and classroom demonstration will be required.

**5310. DIVERSE POPULATIONS IN TODAY'S SCHOOLS (3-0).** An overview of the diverse populations in today's schools. Urban, suburban, and rural school communities and populations will be addressed with special attention to issues of human growth and development, culture, ethnicity, exceptionality, gender, language, religion and socioeconomic status.

**5314. EFFECTIVE CLASSROOM INSTRUCTION (3-0).** Designed to provide teachers with skills and competencies based on research findings on effective teaching and instruction related to promoting student academic achievement. Includes identifying, developing, and practicing instructional variables that affect teacher performance and student learning tasks.

**5315. PRACTICUM (0-3).** Practicum in student's teaching area. This longitudinal experience will help students apply theory and research to practice.

**5321. EDUCATIONAL RESEARCH (3-0).** Examination of basic concepts and procedures necessary for empirical research investigations within classroom contexts, experimental design, data collection and interpretation, and statistical analysis.

**5322. EDUCATIONAL RESEARCH AND EVALUATION (3-0).** An overview of basic concepts and procedures necessary for analyzing, designing, and conducting quantitative and qualitative educational studies. A focus on educational research, including empirical research, investigations data collection and interpretation, and statistical analysis. Also, a focus on educational evaluation including accreditation, personnel appraisal, and educational programs and materials.

**5329. CLASSROOM MANAGEMENT AND DISCIPLINE (3-0).** Analysis of the variables that affect teacher and student behavior in the classroom. Survey of effective strategies of classroom management and discipline based on contemporary research. Particular attention to individual student differences in settings such as gifted and talented, handicapped, and learning disabled.

**5330. LEADERSHIP IN THE INSTRUCTIONAL SETTING (3-0).** Examination of current research on effective instructional organizations and classroom instruction in today's schools, on characteristics of school leadership, and on the role and function of the teacher as instructional leader. Topics include the essential components of instruction, developing instructional-management systems, evaluating student and teacher performance, assisting colleagues to monitor and improve instructional skills, school climate and leadership styles as they impact on school improvement.

**5340. EDUCATIONAL EVALUATION (3-0).** Various means of evaluating school systems and their communities, school personnel, and students. Includes accreditation standards, personnel appraisal, mandated testing of students, and a review of the purpose, description, special utility, standardization, reliability, validity, and strengths, and weaknesses of tests commonly used in public schools.

**5343. PRACTICUM IN SUPERVISION (1-20).** Directed practicum in supervision. The student will be assigned to a public school for field-based supervisory experience. Activities involved may include grant writing, campus planning, site-based management activities, and restructuring efforts as they relate to planning, instruction, and evaluation.

**5358. THEMATIC SCIENCE FOR ELEMENTARY AND SECONDARY TEACHERS (3-0).** Professional development program for elementary and secondary science teachers who will examine a variety of instructional strategies. The course will provide a broad spectrum of content from all areas of science and provide opportunities to participate in investigations, field trips and seminars. The course will facilitate the implementation of a thematic science curriculum in elementary and secondary schools through research-based practices.

**5359. ENVIRONMENTAL SCIENCE FOR ELEMENTARY AND SECONDARY TEACHERS (2-2).** Designed for elementary, middle and high school teachers who will examine a variety of environmental education issues and instructional strategies for classroom and outdoor settings. The course will provide a broad spectrum of content from all areas of science and will provide opportunities to participate in field trips, science investigations and seminar sessions. It will facilitate the implementation of an environmentally based curriculum in schools using best practices.

**5370. INTRODUCTION TO GIFTED AND TALENTED CHILDREN (3-0).** Psychological characteristics of gifted and talented children. Introduction to identification techniques, educational programs, instructional approaches, and special problems.

**5371. MEASUREMENT AND ASSESSMENT OF GIFTED AND TALENTED CHILDREN (3-0).** Tests, formal and informal measures, and systems for identification and selection of the gifted and talented student. Basic test construction theory, test interpretation, and test uses.

**5372. METHODS, MATERIALS, AND CURRICULUM FOR THE GIFTED AND TALENTED (3-0).** Curriculum theory and curriculum design for the gifted student. Methodology for implementing practical and theoretical objectives for gifted instruction.

**5373. CREATIVITY: THEORIES, MODELS, AND APPLICATION (3-0).** The concept of and current research on creativity, the nature and assessment of creative thinking, as well as methods of fostering creativity.

**5374. PRACTICUM (1-5).** Participation in a gifted and talented setting supervised by a university and/or school district representative. A wide range of practical experiences will be emphasized. Graded P/F/R.

**5380. DIVERSITY IN EDUCATIONAL SETTINGS (3-0).** Effective leadership, instruction, and management strategies for work in diverse educational settings. Designed to provide increased self-awareness and insight into issues of diversity such as culture, ethnicity, exceptionality, gender, language, religion, and socioeconomic status. Demographic issues along with urban and suburban educational settings will also be addressed.

**5395. INTRODUCTION TO ACTION RESEARCH (3-0).** Introduces students to the methods of qualitative inquiry in education, including ethnography and case studies. Knowledge and skills for critical consumption of action research are emphasized. The course is classroom-based, naturalistic identification and application. The study of the identification and application of the phases of the action research process.

**5396. CLASSROOM ETHNOGRAPHY IN ACTION (3-0).** Surveys researchable issues and techniques which assist in selecting research strategies for more intensive investigation. Strategies for implementing action research will be emphasized for students to conduct their own action research project.

**5397. DISSEMINATION OF CLASSROOM ACTION RESEARCH STUDY.** Prepares students to use vocabulary related to an action research study when writing and disseminating results in a form that can be presented at state, regional, and national conferences and published in education journals.

**5190, 5290, 5390. SELECTED TOPICS IN EDUCATION.** An examination of different topics related to education. This seminar may be repeated for credit as the topic changes.

**5191, 5291, 5391. INDEPENDENT RESEARCH.** Research for thesis substitute or equivalent over a topic agreed upon between the student and instructor. May be repeated for credit with permission. Graded R.

## Early Childhood Education (ECED)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**NOTE:** Recommended sequence: EDTC 5301, READ 4373, ECED 4310, ECED 5309, ECED 5317, ECED 5318, ECED 5321, ECED 5319, ECED 5320, READ 5351. Please consult with advisors before registering for courses. ECED courses are offered only once per academic year.

**5309. TRENDS AND ISSUES IN EARLY CHILDHOOD EDUCATION (3-0).** In-depth analysis of current research on issues in Early Childhood Education. Emphasis on the evaluation and impact of historical, political, and social policy; overview of legislation and advocacy on behalf of young children.

**5317. THEORIES OF DEVELOPMENT AND LEARNING IN EARLY CHILDHOOD EDUCATION (3-0).** Human growth and development, including developmental anomalies, from birth through early childhood with emphasis on cognitive, social, emotional, and physical growth. Attention is given to current research regarding establishment of learning environments that foster development of the child's self-concept, cognitive competencies, oral language and literacy development, and positive social behaviors including tolerance of diversity among individuals and groups. (May be taken prior to or with ECED 4310, READ 4373 and EDTC 5300).

**5318. PROGRAMS AND PRACTICES IN EARLY CHILDHOOD EDUCATION (3-0).** An overview of the historical and philosophical influences of early education and the current research perspectives on fostering educational environments conducive to development of the whole child. Attention is given to organization and implementation of a developmentally appropriate curriculum in EC-4 and formulating programs which extend and integrate learning experiences of young children, including the home-school relationship. Prerequisite: ECED 5317.

**5319. EARLY EDUCATION: INSTRUCTIONAL STRATEGIES I (3-0).** Study of principles of integration of content in EC-4 classrooms with focus on mathematics and science concepts and cognitive development. Emphasis on developing dispositions promoting scientific investigation and appropriate objects, materials, activities, and programs to assist in assimilation of mathematics and science concepts. Prerequisite: ECED 5317, 5318.

**5320. EARLY EDUCATION: INSTRUCTIONAL STRATEGIES II (3-0).** Study of principles of integration of content in EC-4 classrooms with focus on social studies and the creative arts and cognitive development. Emphasis on developing dispositions promoting developing self, awareness of others, and group dynamics involved in the socialization process in a diverse community. Strategies for enhancing creative and risk-taking characteristics in EC-4 classrooms. Prerequisite: ECED 5317, 5318 and 5319.

**5321. LANGUAGE AND LITERACY DEVELOPMENT: THE EARLY YEARS (3-0).** Examine relationship between listening, talking, reading and writing. Focus on oral and non-verbal communication skills

in native and second language development. Consider theories of early speaking, reading and writing in young children, with focus on the relationship between the use of children's literature and social and cognitive development. Prerequisite: ECED 5317 and 5318.

**5190, 5290, 5390. SELECTED TOPICS IN EARLY CHILDHOOD EDUCATION.** An examination of different topics related to early childhood education. This course may be repeated for credit with permission.

**5191, 5291, 5391. INDEPENDENT RESEARCH.** Research over a topic agreed upon between the student and instructor. May be repeated for credit with permission.

## Educational Technology (EDTC)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5300. INTRODUCTION TO FOUNDATION OF EDUCATION INSTRUCTIONAL DESIGN AND TECHNOLOGY (3-0).** Analysis of integrating TEKS, computers and related technologies in education. Topics include issues and concerns prior to integration, use of software in teaching and learning, identifying resources and strategies for use of the World Wide Web, and creating instructional activities into and across curriculum.

**5301. CURRENT APPLICATIONS OF TECHNOLOGY IN EDUCATION (3-0).** Study of technology use in educational environments. Topics include: instructional, learning, assessment, and management applications; a review of current research on selection, evaluation, and integration of appropriate media; and computer hardware and software, multimedia, laser disk, CD-ROM, and telecommunications systems.

**5302. INTERNET IN EDUCATION (3-0).** Course to aid educators and training professionals in developing robust techniques for locating and utilizing Internet resources in their day-to-day activities. Selected exercises from representative categories of tools such as: Telnet, FTP, Gopher, and WWW.

**5310. COMPUTER APPLICATIONS IN CURRICULUM AND INSTRUCTION (3-0).** Designed for both elementary and secondary teachers; skills and methods necessary to implement computer applications within the curriculum. Methods for managing the computer in the classroom, courseware telecommunications within the curriculum.

**5320. WEB AUTHORING (3-0).** Study of Web site planning, development and HTML tagging. Topics include: storyboards, content creation, Web site tagging with browser independent tags, use of color and fonts to communicate concepts, interactivity by design, ethical use of and respect for intellectual property, understand copyright, fair use, patent, and trademarks, the Master Technology Teacher Standards (EC-12) and the Standards for Basic Endorsement in Educational Computing and Technology Literacy. Prerequisites: EDTC 5300, EDTC 5301 or instructor permission.

**5330. DESKTOP PUBLISHING (3-0).** Study of desktop publishing planning, development, and production. Topics include: desktop publishing terminology, basic design theory, principles of form and design, guidelines for desktop publishing, ethical use of and respect for intellectual property, understand copyright, fair use, patent, and trademarks, the Master Technology Teacher Standards (EC-12) and

the Standards for Basic Endorsement in Educational Computing and Technology Literacy. Prerequisites: EDTC 5300, EDTC 5301 or instructor permission.

**5340. MULTIMEDIA (3-0).** Study of multimedia planning, development, and implementation that maximize the use of technology, student learning, and teacher effectiveness. Topics include: methodologies for tutorials, hypermedia, drills, simulations, educational games, open-ended learning environments, testing, Web-based learning, interactivity by design, ethical use of and respect for intellectual property, understand copyright, fair use, patent, and trademarks, the Master Technology Teacher Standards (EC-12) and the Standards for Basic Endorsement in Educational Computing and Technology Literacy. Prerequisites: EDTC 5300, EDTC 5301, and EDTC 5320 or EDTC 5330, or instructor permission.

**5190, 5290, 5390. SELECTED TOPICS IN EDUCATION.** An examination of different topics related to education. This seminar may be repeated for credit as the topic changes.

**5191, 5291, 5391. INDEPENDENT RESEARCH.** Research for thesis substitute or equivalent over topic agreed upon between student and instructor. Can be repeated for credit with permission. Graded R.

## Middle Level (EDML)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5302. SCIENCE IN THE MIDDLE GRADES (3-0).** The examination of instructional strategies, materials, current research, and technology pertinent to teaching science in the middle grades; the scope and sequence of science content and implementation of instructional approaches to accommodate diverse student populations.

**5303. MATHEMATICS IN THE MIDDLE GRADES (3-0).** The examination of instructional strategies, materials, current research, and technology pertinent to teaching mathematics in the middle grades; the scope and sequence of math content and the selection and implementation of instructional approaches to accommodate diverse student populations.

**5304. SOCIAL STUDIES IN THE MIDDLE GRADES (3-0).** An examination of content, methods, current research, and learning theory appropriate for social studies education in the middle grades. Special attention to methods that promote analytical and evaluative abilities necessary for participatory democracy in a culturally diverse society.

**5308. MIDDLE GRADES ORGANIZATION, INSTRUCTION, AND MANAGEMENT (3-0).** The examination of principles, theories, and research related to developmentally responsive middle level programs, effective instruction and effective strategies of classroom management. Attention is given to the employment of a variety of approaches for developing an appropriate climate to meet the varying needs of the middle level student.

**5328. PREADOLESCENT/ADOLESCENT GROWTH, DEVELOPMENT, AND LEARNING THEORY (3-0).** Physical, social, emotional, and cognitive growth patterns of 10- to 15-year-old children, emphasizing familial, cultural, societal, and genetic determinants of behavior. Attention is given to current research regarding the developmental characteristics of adolescents, including exceptional learners and students with special needs.



## Reading (READ)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5316. PRACTICUM AND SEMINAR IN LITERACY LEARNING (2-1).** Directed practicum in literacy learning. Seminar will be held with emphasis on classroom application of recent issues in literacy learning. This course should be taken as the last reading course in the sequence of graduate reading courses.

**5325. CURRENT TRENDS IN READING AND LANGUAGE ARTS (3-0).** Relationships between theory and practice in the field of reading and language arts at the elementary and secondary level. Emphasis on current trends and issues such as the teaching of word identification, vocabulary, comprehension, spelling and writing. The use of thematic teaching and integrated instruction also will be explored.

**5326. TEACHING THE LANGUAGE ARTS IN SECONDARY SCHOOLS (3-0).** Teaching of the processes and skills for reading/language arts (grades 7 through 12). Topics include teaching the reading and writing process, children's and adolescent literature, poetry, drama, listening/speaking, and media.

**5345. CONTENT AREA READING AND WRITING (3-0).** Explores methods of teaching reading, writing, and study skills in content area subjects. Emphasis on text structure and the difference between narrative and expository text, graphic organizers for text structure, the reading/writing process as applied to informational text. Classroom adaptations for culturally and linguistically diverse populations in the content areas also will be addressed.

**5346. TEACHING THE WRITING PROCESS (3-0).** Current research and theory on the writing process, how children develop as writers, the teacher's role, the learning environment, and motivation, assessment, and evaluation in writing.

**5350. LITERACY ASSESSMENT (3-0).** Assessment and diagnosis, both formal and informal, of reading and language arts learning.

**5351. LITERACY AND AUTHENTIC ASSESSMENT (3-0).** This course is designed to provide individuals seeking initial certification with a foundation of literacy assessment. Introduces the relationship between literacy assessment practices and instruction. The course includes an investigation of research and techniques in literacy testing and assessment and issues of reliability and validity in relation to norm-referenced and criterion-referenced testing as well as authentic assessment. Assessment techniques which support the acquisition and development of literacy in diverse classrooms in grades PK-4 will be examined. The course emphasizes the principles, practices, and applications of a variety of reading assessments for students with different learning abilities and needs. Students will explore individual students' literacy strengths, areas that need development, and specific instructional strategies to meet those needs.

**5353. LITERATURE FOR CHILDREN AND YOUNG ADULTS (3-0).** Selection, evaluation, and use of current literature published for children and young adults.

**5354. MULTICULTURAL LITERATURE FOR CHILDREN (3-0).** Study of literature for children and young adults which reflects the

culture and experiences of African-Americans, Asian-Americans, Mexican-Americans, and Native Americans, among others. Consideration of selection guidelines, evaluation of literary quality as well as cultural authenticity and teaching applications, including adaptations for culturally and linguistically diverse populations.

**5355. EMERGENT LITERACY (3-0).** Examination of the natural process of early literacy development: an overview of current theory/research, designing literacy learning environments, philosophy, organization and assessment; relationship between home and school; community and parental involvement.

**5356. POETRY FOR CHILDREN (3-0).** The study of poetry published for children, from classic to contemporary. Consideration of theory and research, selection and analysis, classroom applications, and performance of poetry of all types.

**5357. COMPARATIVE LITERACY PROGRAMS (3-0).** An overview of diverse paradigms and instructional approaches for literacy learning from a national and international perspective; impact of sociocultural variables on literacy programs, and exploration of learning/teaching processes from a cross-cultural perspective.

**5361. LANGUAGE LEARNING: EDUCATIONAL PERSPECTIVES (3-0).** Deals with the relationship between first and second language acquisition and literacy, dialect, linguistics, culture; nature and definition of language; overview of linguistic science and language with pedagogical applications. May be cross-listed with BEEP 5361. Students may not take both BEEP 5361 and READ 5361.

**5362. LITERACY INSTRUCTION IN ESL/BILINGUAL SETTINGS (3-0).** Translation of theory into practice stressing various methods and techniques for teaching ESL/bilingual students with emphasis on techniques for oral language development, reading and writing. A comparison/contrast of the various methods, their specifics, and when and how to use them for various instructional objectives as well as the relationship of language development, culture, and conceptual processes to language teaching. May be cross-listed with BEEP 5362. Students may not take both BEEP 5362 and READ 5362.

**5378. LITERACY AND LITERATURE AT THE MIDDLE LEVEL (3-0).** Research-based teaching of literacy and literature at the middle level, including theory and practice in the teaching of reading, writing, listening, and speaking; selection and integration of current and appropriate literature for children and young adults; issues of motivation, organization, and assessment.

**5389. DESIGNING WEB-BASED LITERACY PROJECTS (3-0).** Explores principles and techniques for Web page design and other Internet-based applications. Considers criteria for site analysis and assessment. Students will research current methods of effective Internet content delivery and create literacy applications for parent outreach, teacher networking, student tutoring, and other literacy projects.

**5390. SELECTED TOPICS IN READING (3-0).** An examination of different topics each semester, with a focus on subjects related to reading, writing, oral language, and literacy.

**5191, 5291, 5391. INDEPENDENT RESEARCH IN READING (3-0).** Individual or small group research project on a literacy-related topic agreed upon between student(s) and instructor. May be repeated for credit with permission.

# Department of Educational Leadership and Policy Studies

[www.uta.edu/coed/educleadership](http://www.uta.edu/coed/educleadership)

## Degrees and Certificates

Master of Education (M.Ed.)  
Superintendent Certification  
Principal Certification  
Temporary Principal Certificate  
Temporary Assistant Principal Certificate

## Master's Degree Plans

Non-Thesis

## Chair

Charles Funkhouser  
420 Hammond, 817-272-2841  
[sperkings@uta.edu](mailto:sperkings@uta.edu)

## Graduate Advisor

Ernest Johnson  
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[sperkings@uta.edu](mailto:sperkings@uta.edu)

## Graduate and Certification Services

Brendan Hardy  
817-272-2956  
[soedesk@uta.edu](mailto:soedesk@uta.edu)

## Superintendent Certification

Ron Caloss  
817-272-2841 or 817-690-8045  
[rcaloss@comcast.net](mailto:rcaloss@comcast.net)

## Principal Certification

Diane Patrick  
418 Hammond, 817-272-3575  
[dpatrick@uta.edu](mailto:dpatrick@uta.edu)

## Graduate Faculty Professors

Funkhouser, Gerlach

## Associate Professor

Wilmore

## Assistant Professors

Patrick, Stader

## Admission Requirements

### Unconditional Admission

- 2 of 3 current GRE minimum score conditions
  - verbal score of 500 (not less than 400)
  - quantitative score of 500 (not less than 400)
  - analytical writing score of 4.0
- 3.0 GPA during the last 60 hours of undergraduate coursework AND a 3.0 average on all graduate work
- 3 letters of reference on file

### Probationary Admission

Applicants who do not meet all of the criteria for unconditional admission will be considered for probationary admission on the basis of the following:

- 3.0 GPA during the last 60 hours of undergraduate coursework AND a 3.0 GPA on all graduate work
- Professionally relevant experience
- Writing sample evaluated by the COEd Graduate Studies Committee with a pre-selected evaluation scale. When available, the GRE writing sample will be required for probationary admission.

**Terms of Probation upon Acceptance:** All students admitted under probation status will be required to earn a 3.5 GPA during the first 12 hours of graduate coursework in the program.

### Provisional Admission

An applicant unable to supply all required documentation prior to the admissions deadline, but who otherwise appears to meet admissions requirements may be granted provisional admission.

### Deferred Admission

An applicant's admission may be deferred when a file is not complete or when denying admission is not appropriate.

### Denied Admission

An applicant may be denied admission if the conditions for unconditional and probationary admission have not been met.

## Programs

The Department of Educational Leadership and Policy Studies currently offers the Master of Education (M.Ed.) in Educational Administration. Coursework for the Principalship certification is built into the master's degree plan of 39 hours. Candidates are required to pass the state certification exam to be recommended for Principal Certification. The Department of Educational Leadership and Policy Studies offers two routes to Principal Certification with a master's degree: a campus-based approach, and the three innovative field-based programs, Scholars of Practice, Educational Leadership UTA and the Urban Collaborative for Educational Leadership. The latter two options are open only to those who are selected by their districts to participate.

With the assistance of the Graduate Advisor, candidates are required to complete a tentative program of work prior to completing 12 hours of graduate work. This program of work is filed in the Graduate School and may be modified as needed. Candidates for master's degrees are required to submit a final program of work during their final semester of coursework for the degree. For candidates who already have a master's

degree, an 18-24 hour option is provided for the Principal Certification. A passing score on the state principal certification exam is required.

### Superintendent Certification

Educational Leadership and Policy Studies offers coursework and field experiences leading to Superintendent Certification. Upon completion of superintendency coursework, a passing score on the Superintendent Examination for the Certification of Educators in Texas (TExES), and evidence of Principal or equivalent certification, candidates will be recommended to the State Board for Educator Certification (SBEC) for issuance of the certificate.

### Doctor of Philosophy in Public and Urban Administration with Educational Leadership Emphasis

The Ph.D. in Public and Urban Administration with an emphasis in educational leadership and policy studies prepares candidates for key administrative positions in educational institutions, for upper-level management positions in public- and nonprofit-sector organizations and for teaching and research positions in institutions of higher education. The School of Public and Urban Affairs (SUPA) and the Department of Educational Leadership and Policy Studies, College of Education (COEd), teach the program jointly. Interested students should first contact the SUPA Ph.D. Advisor at 817-272-3071, Fax 817-272-5008 or E-mail: lgordon@uta.edu. Visit [www.uta.edu/supa](http://www.uta.edu/supa) for more information.

### Temporary Administrator Certification

The temporary Assistant Principal Certificate is effective for five years and is nonrenewable. An applicant must hold both a baccalaureate degree from an accredited institution and a valid Texas teacher certificate. Applicants must also provide evidence of two years of creditable teaching experience and must have successfully completed EDAD 5381, 5382, 5383, and 5384. Applicants must complete application forms and pay the necessary fees. No TExES exam is required.

The Temporary Principal Certificate is available to applicants who meet all of the requirements cited above and, in addition, must have earned a master's degree. As with the above, no TExES exam is required. Visit [www.sbcec.state.tx.us](http://www.sbcec.state.tx.us) for information regarding status of temporary certificates.

### Principal Certification

Applicants who have earned master's degrees from accredited institutions and are only interested in Principal Certification will be required to complete 18-24 semester credit hours of EDAD coursework and internships. An applicant must hold a valid Texas Teacher Certificate, have a minimum of two creditable years of teaching experience, be admitted to the Principal Preparation program and complete a certification plan with the Graduate Advisor.

#### Required EDAD Courses for Principal Certification

5330, 5381, 5382, 5383, 5384, 5389, 5399, and one additional course from 5322, 5376, 5377, 5380, 5388, 5395, or other course approved by the graduate advisor and department chair.

### Master of Education with Principal Certification Requirements

#### Foundations - 6 credit hours

EDAD 5382. Foundations of Educational Administration  
EDAD 5380. Diversity in Educational Settings

#### Research - 3 credit hours

EDAD 5322. Educational Research and Evaluation

#### Technology - 3 credit hours

EDTC 53\_\_ or equivalent

#### Instructional Leadership / Curriculum & Instruction – General: 6 credit hours from the following selected or by advisement:

EDAD 5330. Leadership in the Instructional Setting (required but can be waived with approved Instructional Leadership Development / ILD Certification)  
EDUC/EDAD 5309. Advanced Instructional Strategies  
EDUC/EDAD 5305. Curriculum Design, Implementation and Evaluation

#### Administrative Leadership - 9 credit hours

EDAD 5381. Political and Legal Aspects of Education  
EDAD 5383. The Principalship  
EDAD 5384. Resource Management in Education

#### Policy Studies – 6 credit hours

EDAD 5376. Educational Governance  
EDAD 5388. Educational Policy Issues in the Public Schools  
EDAD 5395. Futuristic Leadership Roles in School Administration  
EDAD 5377. Contemporary Issues in Education

#### Internship and Capstone Courses - 6 credit hours

EDAD 5389. Administrative Internship (enroll in early in sequence)  
EDAD 5399. Capstone Internship in Educational Administration  
(this course is taken during the last Fall or Spring semester of the program)

#### Electives

Additional courses selected or by advisement to reach 39 credit hours minimum for degree.

#### Degree Total (minimum): 39 credit hours

Refer to Department Guidebook or advisors for sequence of courses.

## Degree Requirements

The Department of Educational Leadership and Policy Studies offers two routes to earn the Master of Education in Educational Administration (M.Ed.) and Principalship Certification: the campus-based self-selecting program, and several cohort programs (i.e. groups of students following the same sequences and programs) are also available.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Educational Administration (EDAD)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**EDTC 5301. CURRENT APPLICATIONS OF TECHNOLOGY IN EDUCATIONAL ADMINISTRATION (3-0).** Study of technology use in educational administration. Topics include: instructional, learning, assessment, and management applications; a review of current research on selection, evaluation, and integration of appropriate media; and computer hardware and software, multimedia, laser disk, CD-ROM, and telecommunications systems.

**5305. CURRICULUM DESIGN, IMPLEMENTATION, AND EVALUATION (3-0).** An examination of theory and research in curriculum development, implementation, and evaluation. Emphasis on current trends in the content areas.

**5309. ADVANCED INSTRUCTIONAL STRATEGIES (3-0).** A study of advanced models of teaching, including concept attainment, inductive thinking, inquiry, cognitive growth, non-directive group investigation, laboratory training, simulation and the training model. Research in teacher effectiveness and demonstration of various models will be required.

**5315. RESEARCH PRACTICUM (3-0).** Examination of basic concepts and procedures necessary for empirical research investigations within classroom contexts, experimental design, data collection and interpretation, and statistical analysis.

**5322. EDUCATIONAL RESEARCH AND EVALUATION (3-0).** An overview of basic concepts and procedures necessary for analyzing, designing, and conducting quantitative and qualitative educational studies. Topics include familiarization with educational journals, associations, funding agencies, accreditation procedures, program evaluation, sampling procedures, data collection, and statistical analyses.

**5330. LEADERSHIP IN THE INSTRUCTIONAL SETTING (3.0).** Examination of current research on effective instructional organizations and classroom instruction in today's schools, on characteristics of school leadership, and on the role and function of the teacher as instructional leader. Topics include the essential components of instruction, developing instructional-management systems, evaluating student and teacher performance, assisting colleagues to monitor and improve instructional skills, school climate and leadership styles as they impact on school improvement.

**5363. ADVANCED EDUCATIONAL RESEARCH (3-0).** An in-depth coverage of selected topics in the design of research and the collection and analysis of data. Topics include multivariate analyses, experimental and quasi-experimental designs, development and selection of data collection instruments, focus group interviewing, observational research, the delphi method, and interpretive analysis.

**5376. EDUCATIONAL GOVERNANCE (3-0).** Focus on the appointed and elected entities and bureaucracies that determine and implement policy in public education.

**5377. CONTEMPORARY ISSUES IN EDUCATION (3-0).** An exploration of selected controversial issues in contemporary education. Symposium/seminar/lecture format.

**5380. DIVERSITY IN EDUCATIONAL SETTINGS (3-0).** Effective leadership, instruction, and management strategies for work in diverse educational settings. Designed to provide increased self-awareness and insight into issues of diversity such as culture, ethnicity, exceptionality, gender, language, and socioeconomic status. Demographic issues along with urban and suburban educational settings will also be addressed.

**5381. POLITICAL AND LEGAL ASPECTS OF EDUCATION (3-0).** Focus on the legal foundation of public education, political theory, and application of political skills in working with school personnel, students, parents, and community organizations. The role of the law, court rulings, and the politics of school governance at the federal, state, and local levels will be addressed.

**5382. FOUNDATIONS OF EDUCATIONAL ADMINISTRATION (3-0).** Will address the various aspects of instructional leadership roles and responsibilities of central office as well as building level administrators and supervisors. Topics included will be history of educational administration, educational philosophy, the global understanding of administrative roles in urban and rural settings, and professional organizations, as well as an overview of educational reforms, site-based management, governance, instructional management, evaluation, exchanging ideas, making changes, coaching beginning teachers, mentoring of teachers and peers, and a diverse community.

**5383. THE PRINCIPALSHIP (3-0).** The Principalship will address the role of the campus leader in the leadership, organization and administration of schools. The importance of campus culture, climate, vision and ethics will be stressed throughout standards-based instruction, case studies, developmental activities, readings, reflections and field experiences. The importance of appropriate principal induction will be stressed along with the concepts of the principal as scholar-practitioner and proactive leader. An emphasis will be placed on continuous school improvement and a commitment to professional development.

**5384. RESOURCE MANAGEMENT IN EDUCATION (3-0).** School finance, as well as auxiliary areas of resource management, will be addressed. The emphasis will be on the use of technology, alternative models of financing and budgeting, and sources of revenue from the federal, state, and local levels as well as from private sources. The course is designed to assist administrators in developing an understanding of the functions, operation, and evaluation of auxiliary services which support the educational program.

**5388. EDUCATIONAL POLICY ISSUES IN THE PUBLIC SCHOOLS (3-0).** Examination of positions on policy issues of importance in public education.

**5389. ADMINISTRATIVE INTERNSHIP (1-15).** Designed to provide prospective educational administrators job-related experiences under supervision in an appropriate educational setting. An approved professional study is designed in relationship to the intern's interest and past experiences. Can be repeated for credit with approval of advisor.

**5395. FUTURISTIC LEADERSHIP ROLES IN SCHOOL ADMINISTRATION (3-0).** Concepts and skills to prepare educational leaders for learner-centered schools and to anticipate and foster the professional development of all staff and parents in the learning community.

**5190, 5290, 5390. SELECTED TOPICS IN EDUCATION (3-0).** An examination of different topics related to education. This seminar may be repeated for credit as the topic changes.

**5191, 5291, 5391. INDEPENDENT RESEARCH.** Research for thesis substitute or equivalent over topic agreed upon between student and instructor. Can be repeated for credit with permission. Graded R.

**5399. CAPSTONE INTERNSHIP IN EDUCATIONAL LEADERSHIP AND POLICY STUDIES (1-15).** Successful completion of the Capstone Internship will fulfill the comprehensive examination requirements for the graduate degree and/or certification. Requirements of ELPS 5399 will include, but not be limited to, those collaboratively established by University faculty and school administrative personnel.

## Master of Science in Physiology of Exercise

### Objective

The program of study leading to the Master of Science (M.S.) in Physiology of Exercise is designed to accomplish two major objectives:

- To prepare students for employment in clinically-oriented environments that place an emphasis on research
- To provide students with the academic and research skills needed for doctoral study in physiology of exercise

Current departmental faculty members have been academically trained in, and are actively publishing in the areas of physiology of exercise and the general areas of allied health sciences. The ongoing research in these areas provides the primary focus for the M.S. program. Program graduates will be well prepared to work as researchers in exercise physiology laboratories and to enroll in doctoral programs in this content area.

Students are encouraged to present their research at state and national meetings of the American College of Sports Medicine (ACSM). The M.S. degree combined with supervised clinical experience will assist students in their preparation for ACSM's Exercise Specialist examination.

## Admission Requirements

### Unconditional Admission

- Current GRE score of at least 400 on the verbal test of the GRE and a score of at least 600 on the quantitative test of the GRE.
- 3.0 GPA for the degree and/or 3.0 GPA during the last 60 hours of undergraduate work
- undergraduate and/or graduate course work related to exercise physiology.
- 3.0 GPA on all graduate work
- 3 letters of reference on file

### Probationary Admission

Applicants failing to meet the unconditional admission GRE criteria or having a GPA less than 3.0 may be considered for probationary admission in which case the following additional criteria will also be considered by the Graduate Studies Committee:

- Professionally relevant experience
- A sample of technical writing may be requested

Applicants admitted on probation will be required to maintain a B or better average during their first 12 hours of graduate study.

A Graduate Advisor within the Department of Kinesiology will review transcripts of prospective students to determine what prerequisites are needed prior to enrollment in courses within the proposed program. If deficiencies are identified, a pre-program of study designed to prepare the student for graduate course prerequisites will be written and signed by the prospective student and the Graduate Advisor.

## Department of Kinesiology

[www.uta.edu/coed/kinesiology](http://www.uta.edu/coed/kinesiology)

### Chair

Barry C. McKeown  
112 Physical Education, 817-272-3288  
[mckeown@uta.edu](mailto:mckeown@uta.edu)

### Graduate Faculty

Professor  
McKeown

### Associate Professors

Beckham, Everhart, Fincher

### Assistant Professors

Ables, Cramer, Trowbridge, Wilson

For specific information regarding graduate study in the Department of Kinesiology, please contact the Graduate Advisor at 817-272-3288 or by e-mail at [kinegradcoord@uta.edu](mailto:kinegradcoord@uta.edu).

## Graduate Assistantships

Graduate assistantships are available through the Department of Kinesiology. Application forms are available through the departmental web page or by calling the Department of Kinesiology. Assistantships are contingent upon admission to the M.S. program and academic background.

## College of Education Dean's Master's Fellowships

When available, the Dean of the College of Education periodically offers a limited number of graduate fellowships for first-time master's students at The University of Texas at Arlington who meet all of the criteria for that specific fellowship. One criterion is that students must be unconditionally admitted to the graduate school. For more information on the fellowship, go to the College of Education Web site at [www.uta.edu/coed/scholarships](http://www.uta.edu/coed/scholarships).

## Degree Requirements

All students accepted into the Master of Science in Physiology of Exercise program will take a core of 24-semester hours including the Physiology of Exercise core and research courses. In addition, all students are required to complete six semester hours of approved electives. The student will complete their M.S. program with six credit hours of thesis work.

### Courses

**Research Core** (9 semester credit hours)

- KINE 5300 Research Methods in Kinesiology (3-0)
- KINE 5305 Applied Statistical Principles in Kinesiology (3-0)
- KINE 5320 Advanced Physiology of Exercise (2-3)

**Disciplinary Core** (15 semester credit hours)

- KINE 5125 Immunology (1-0)
- KINE 5226 Pulmonary Physiology of Exercise (1-3)
- KINE 5326 Cardiocirculatory Physiology of Exercise (2-3)
- KINE 5322 Metabolism (2-3)
- KINE 5328 Neuromuscular Physiology of Exercise (2-3)
- KINE 5330 Body Composition (2-3)

**Electives** (6 semester credit hours)

Electives approved by the graduate advisor or coordinator will be selected to support the academic foundation in Physiology of Exercise. These graduate level courses may be taken within or outside of the department with Graduate Advisor permission.

**Thesis** (6 semester credit hours)

- KINE 5398 or 5698 Thesis

## Kinesiology (KINE)

**5125. IMMUNOLOGY (1-0).** This course will include a brief review of the immune system and factors that affect immune function with emphasis on the effect of exercise and stress on muscle and overall immune function. The effect of nutrition and over-training on the immune system and associated syndromes/diseases will also be presented. Prerequisite: KINE 5320.

**5226. PULMONARY PHYSIOLOGY OF EXERCISE (1-3).** Examines the structure and function of the pulmonary system including mechanics of breathing, lung capacity tests, pulmonary circulation, lung diseases, gas exchange, ventilation, diffusing capacity, acid/base balance, neural and chemical regulation of breathing, and blood flow with respect to rest and exercise values in healthy and diseased populations. Prerequisite: KINE 5320.

**5300. RESEARCH METHODS IN KINESIOLOGY (3-0).** This course is an overview of concepts and procedures necessary for designing, conducting, and analyzing research in Kinesiology from multiple research paradigms. The course will focus on the steps involved in the administration of a research project, including literature review, design, data collection and analysis.

**5305. APPLIED STATISTICAL PRINCIPLES IN KINESIOLOGY (3-0).** The course covers descriptive statistics, elementary probability, one- and two-population mean and variance comparisons, ANOVA, simple linear regression, and correlations. In addition, more advanced principles in parametric and non-parametric statistics will be emphasized.

**5320. ADVANCED PHYSIOLOGY OF EXERCISE (2-3).** Lecture and laboratory sessions are designed to investigate concepts of energy metabolism, lactate production and accumulation, energy expenditure, excess post exercise oxygen consumption, cardiovascular and temperature regulation, neuromuscular control, aerobic and anaerobic adaptations and ergonomics.

**5322. METABOLISM (2-3).** This course will address the regulation of fat and carbohydrate metabolism at rest and during exercise, cellular respiration, energy transfer, and energy systems. Calorimetry, respiratory exchange ratio, and substrate utilization during exercise will be assessed as part of the laboratory section of this course. Prerequisite: KINE 5320.

**5326. CARDIOCIRCULATORY PHYSIOLOGY OF EXERCISE (2-3).** The structure and function of the cardiovascular and circulatory system will be studied, as well as, cardiac control, the cardiac cycle, cardiac output, hemodynamics, vascular resistance, arterial-venous oxygen difference and oxygen delivery and consumption. Heat production and thermal control during exercise will also be addressed in lecture and laboratory sessions. Prerequisite: KINE 5320.

**5328. NEUROMUSCULAR PHYSIOLOGY OF EXERCISE (2-3).** The structure and function of muscle, including the motor unit, control and integration, central and peripheral modifiers of neuromuscular control and biochemical characteristics of fibers will be studied. These concepts will also be applied to concepts in strength and power development. Prerequisite: KINE 5320.

**5330. BODY COMPOSITION (2-3).** Lecture and laboratory sessions will investigate component models, anthropometry, morphological considerations, obesity and techniques for assessing body composition. Prerequisite: KINE 5320 or concurrent enrollment.

**5335. GRADED EXERCISE TESTING AND PRESCRIPTION (2-3).** The knowledge and skills necessary for assessment of health history and appraisal, blood pressure, electrocardiogram, cardiovascular fitness and function will be acquired in lecture and laboratory sessions. Various test modalities and protocols will be discussed for health and diseased populations. Prerequisite: KINE 5320.

**5345. NUTRITION IN HEALTH AND FITNESS (3-0).** This course will examine the relationship between diet and development and treatment of chronic diseases including cardiovascular disease, diabetes, osteoporosis, and cancer. Research on clinical, epidemiological, animal, and lab studies will be examined, as appropriate. Benefits and side effects associated with sports supplements and ergogenic aids will be discussed.

**5350. APPLIED BIOMECHANICS (3-0).** Students will investigate the application of biomechanical principles to human motor skill performance in sport and exercise settings. Emphasis will be placed on motor skill instruction as well as characteristics of skilled performance.

**5190, 5290, 5390. SPECIAL TOPICS IN KINESIOLOGY.** In-depth study of selected topics in physical education and exercise science. May be repeated when topics vary. Prerequisite: consent of instructor.

**5194, 5294, 5394, 5694, 5994. RESEARCH IN KINESIOLOGY.** Individually approved research projects selected from the various areas of Kinesiology.

**5398, 5698. THESIS.**

## Other Graduate Course Information

In addition to the Master of Science in Physiology of Exercise, the Department of Kinesiology allows students to enroll in approved special topics courses to fulfill course requirements for other degree programs such as the UT TeleCampus graduate programs in Kinesiology, Nursing, Biomedical Engineering and the Master of Education in Teaching within the College of Education at U.T. Arlington.

# The College of Engineering

Dean: Bill D. Carroll, Ph.D.

634 Nedderman Hall • Box 19019 • 817-272-2571 • [www.uta.edu/engineering](http://www.uta.edu/engineering)

## Mission

The mission of the College of Engineering is to meet the needs of industry and society by:

- Producing highly competent graduates at the baccalaureate, master's and doctoral levels,
- Performing state-of-the-art research in the disciplines comprising the diverse fields of engineering, and
- Providing service to the community and engineering profession through outreach programs, involvement in professional societies, consulting, and interaction with industry and government.

## History and Overview

With more than 4,100 students, a strong faculty, excellent classrooms and outstanding research facilities, the College of Engineering at The University of Texas at Arlington is a major research institution with comprehensive programs in a number of areas.

The engineering program at U.T. Arlington evolved from a two-year program that was established at North Texas Agricultural College during the 1930s and 1940s. North Texas Agricultural College became Arlington State College, and in 1959 approval was given to begin a four year engineering program. In 1965, Arlington State College joined The University of Texas System as The University of Texas at Arlington, and the first master's degree program in engineering was approved. The first Ph.D. program in engineering was added in 1969. Construction of the Engineering Laboratory Building in 1977, the Engineering Annex in 1980, the Automation & Robotics Research Institute (ARRI) in 1987, Nedderman Hall in 1988, the Nanotechnology Research and Teaching Facility in 2001 and the Engineering Office Buildings East and West in 2003 provided additional classroom and research laboratory space for the continued growth of the College of Engineering.

The college is a leader in distance education, providing a convenient way for working engineers to pursue a master's degree. Starting with TAGER, a dedicated microwave communications link in 1975, courses are now distributed on the Internet and videotape or disks, providing a very convenient access to students. More information can be found at <http://www.uta.edu/engineering/distance/>.

## Research Interests of the Faculty

There is an excellent equipment infrastructure to support research in nanotechnology, microelectronics and MEMS, robotics and manufacturing, materials and their characterization, pervasive computing, intelligent systems, software engineering, networking, embedded systems, database systems, multimedia systems, bioinformatics, information technology, security, transportation

systems, hydrology and hydraulics systems, geotechnical engineering, environmental engineering, solid mechanics, structural analysis, aerodynamics, flight mechanics and control, electronic packaging, energy systems, optics, statistics and optimizations, and many more. There are two formal research centers, the Automation & Robotics Research Institute (ARRI) and the Nanotechnology Research and Teaching Facility (NRTF), with the directors reporting to the Dean of Engineering.

Many College of Engineering faculty members collaborate with professors and researchers in other colleges at UTA and other institutions in the state, around the U.S., and around the world. Therefore, for those interested in doing research as part of graduate training, there are many opportunities to work on research projects which are either within the home department or interdisciplinary with other departments.

## Programs

Graduate work in engineering at U.T. Arlington may lead to the master of science or doctor of philosophy in the following programs:

- Aerospace Engineering
- Biomedical Engineering
- Civil Engineering
- Computer Science
- Computer Science and Engineering
- Electrical Engineering
- Industrial Engineering
- Materials Science and Engineering
- Mechanical Engineering

Master's degree programs are available in:

- Logistics
- Engineering Management
- Software Engineering

Graduate work leading to a practice-oriented master's degree usually requires a design project, report, internship or additional coursework. Details are given in the individual program descriptions that follow.

The program in Materials Science and Engineering (MSE) is under the auspices of both the College of Engineering and the College of Science. Biomedical Engineering (BME) is a joint program with The University of Texas Southwestern Medical Center at Dallas. The Master of Science in Logistics and Master of Science in Engineering Management are offered in partnership with the College of Business Administration. Descriptions of these programs are in the Interdepartmental and Intercampus Programs section of this catalog.

Please visit the graduate program Web site at <http://www.uta.edu/engineering/graduate.php> for detailed information.



## Objective

The overall objective of the graduate program in aerospace engineering is to develop in a student the ability to define a technical problem, establish an appropriate mathematical or experimental model based on a firm understanding of the physical nature of the problem, analyze the problem by theoretical, numerical, or experimental techniques, and evaluate the results. Although this ability is developed in the context of aerospace problems, it is applicable to the engineering of any physical system. The program is designed for a student with any of the following specific objectives:

1. A sound foundation in advanced mathematics, science, and engineering which will equip the student well for research and development work or for further advanced study toward a doctoral degree in engineering.
2. A program of advanced study which allows specialization in one of the following areas:
  - a. Fluid dynamics, aerodynamics and propulsion (theoretical and applied aerodynamics, gasdynamics, viscous fluid mechanics, turbulence, computational and experimental fluid dynamics, hypersonic flow theory, high-temperature gasdynamics, V/STOL and rotorcraft aerodynamics, air-breathing and rocket propulsion);
  - b. Structural mechanics (theory of elasticity, mechanical vibrations, structural dynamics, composite structures, damage tolerance, smart structures, high-temperature structures and materials, aeroelasticity);
  - c. Flight mechanics (atmospheric and space flight mechanics, orbital mechanics, guidance, navigation and control);
  - d. Vehicle design (atmospheric flight vehicle design, spacecraft design).
3. A balanced but non-specialized program of advanced study in aerodynamics, astronautics, flight dynamics, structural analysis, propulsion, and fluid mechanics, with emphasis on experimental techniques and modern mathematical analysis.

## Admission Requirements

### Admission Criteria

Admission to the graduate program in AE is based on equal weighting of the following six criteria:

1. An overall GPA, as calculated by the Graduate School, of 3.0 or higher in undergraduate coursework.
2. Relevance of the student's previous degrees to the AE curriculum.
3. Reputation of the universities or colleges the student has attended.
4. GRE verbal/quantitative scores of at least 400/650, respectively, for M.S. candidates and 500/750 for Ph.D. applicants.
5. Three satisfactory written recommendation forms from prior professors or supervisors.
6. A written essay on the student's goals and reasons for pursuing graduate studies.

## Program in Aerospace Engineering

[www-mae.uta.edu](http://www-mae.uta.edu)

### Area of Study and Degrees

Aerospace Engineering

M.S., M.Engr., Ph.D.

### Master's Degree Plans

Thesis (M.S.), Thesis-Substitute (M.S.)  
and Non-Thesis (M.Engr.)

### Director

Don Seath

214C Woolf Hall, 817-272-2059

### Graduate Advisor

Don Wilson

315F Woolf Hall, 817-272-2072

### Graduate Faculty

#### Professors

Anderson, Chan, Gaines,

Joshi, Lawrence, Lu,

Seath, Wang, Wilson

#### Associate Professor

Shiakolas

#### Assistant Professors

Dogan, Subbarao

#### Professors Emeritus

Dalley, Fairchild, Jiles, Payne

## Admission Status

1. **Unconditional Admission:** Applicants who show by meeting all of the above criteria that they are fully prepared to start immediately on their selected graduate program of interest will be admitted unconditionally.
2. **Probationary Admission:** Applicants who fail to meet the conditions for unconditional admission, but satisfy at least four of the six criteria listed above, will be considered for probationary admission. The graduate advisor normally identifies areas of deficiency that must be removed by successfully completing assigned remedial courses before the admission status is changed to unconditional.
3. **Provisionary Admission:** Applicants who are unable to supply all of the required documentation prior to the admission deadline, but who otherwise appear to meet the admission criteria, may be granted provisional admission.
4. **Denial:** Applicants who fail to meet at least four of the six admission criteria will normally be denied admission.
5. **Deferral:** A deferred decision may be granted when an application file is incomplete or when a denied decision is not appropriate.

## Criteria for Award of Fellowships or Assistantships

Applicants who demonstrate skills, experience or interests that meet the needs of the AE Graduate Program will be considered for fellowships or assistantships.

## Continuation

The Aerospace Engineering Graduate Program, in fulfillment of its responsibility to graduate highly qualified professional engineers, has established certain policies and procedures. In addition to the requirements of the Graduate School listed elsewhere, to continue in the program each aerospace engineering graduate student must:

1. Maintain at least a B (3.0) overall GPA in all coursework major and minor, and
2. Demonstrate suitability for professional engineering practice.

At such time as questions are raised by aerospace engineering graduate faculty regarding either of the above, the student will be notified and will be provided the opportunity to respond to the Committee on Graduate Studies in Aerospace Engineering. The Committee on Graduate Studies will review the student's performance and make a recommendation concerning the student's eligibility to continue in the program. Appeal of a decision on continuation may be made through normal procedures outlined in the section of this catalog entitled "Grievances Other than Grades."

## Degree Requirements

### All Graduate Degrees

All entering students must be proficient in mathematics, engineering analysis, and computer programming. Students not meeting these requirements may be admitted on a probationary basis and given a plan of remedial undergraduate coursework. No graduate credit will be granted for these courses. Normally, all master's and doctoral

candidates in aerospace engineering shall enroll in the Graduate Seminar (AE 5101) a minimum of three times (see course description). Repeat enrollments shall require an oral presentation of thesis/dissertation results. All candidates are required to select a Supervising Professor and obtain an approved program of work in the second full semester or after 12 hours are completed.

### Master of Engineering or Master of Science

The Department of Mechanical and Aerospace Engineering offers both the Master of Engineering and the Master of Science degrees in Aerospace Engineering. The Master of Engineering is a non-thesis program of advanced study, requiring 36 hours of coursework. This is the preferred route for distance education students. Although the Master of Engineering is a non-thesis degree, students pursuing this option must still select a faculty member to act as a Supervising Professor. The Supervising Professor will assist the student as described below.

The Master of Science degree requires a minimum of 24 hours of coursework, a minimum of 6 hours of thesis preparation, and an acceptable thesis. Additional research credit hours are often needed for the Master of Science degree. The thesis may be oriented toward either research or advanced engineering analysis and design. Students pursuing the Master of Science option must select a faculty member to act as a Supervising Professor. The Supervising Professor will help to form an appropriate plan of study for elective courses, guide the student through his research project, and take care of any required administrative tasks.

In special cases, the Department of Mechanical and Aerospace Engineering will also grant a Master of Science degree based on a "thesis substitute," which is of more limited scope compared with the Master's thesis. In this case, a minimum of 30 hours of coursework and a minimum of 6 hours of research are also required. Additional research credit hours may also be needed for the thesis-substitute option.

All three Master's degree plans require the same set of core courses. Five core courses are required; three in engineering, and two in a minor area, typically mathematics. In addition to the five lecture courses, three credit hours of graduate seminar are also required (see the discussion in the preceding section). The engineering core is satisfied by taking a minimum of three out of the following core courses:

1. AE 5302 Advanced Flight Mechanics
2. AE 5313 Fluid Dynamics
3. AE 5326 Advanced Propulsion
4. AE 5330 Finite Element Methods

In most cases, the minor is satisfied by completing the following two courses:

1. AE 5351 Analytical Methods in Engineering
2. AE 5352 Engineering Analysis

For students with exceptional mathematics background, the minor may be composed of two courses selected by the student and Supervising Professor that are deemed supportive of the student's area of concentration and meet approval of the Graduate Advisor.

For any of the Master's degree plans, the balance of the required coursework hours may be chosen by the Supervising Professor to meet the student's needs and interests. Normally these additional elective courses should be selected from the offerings of the Program in Aerospace Engineering or the Program in Mechanical Engineering. Courses taken outside the two programs require approval of the student's Supervising Professor as well as the Graduate Advisor.

## Doctor of Philosophy

The Ph.D. degree can be tailored to satisfy the individual student's aspirations in choice of the area of specialization, while at the same time providing a broad range of knowledge in the major technical areas comprising the field of aerospace engineering. The program will generally require two to three years of full-time study beyond the Master's degree and will include a scholarly dissertation that provides an original contribution to the literature in aerospace engineering.

All entering the Ph.D. program are required to take, at the first opportunity, the Ph.D. Diagnostic Exam: this is offered once per year on the first Saturday in October. Possible outcomes of this evaluation are: 1) continuation in the doctoral program, 2) approval to continue with certain specified remedial work, 3) failure with approval to retake, 4) termination in the program.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Aerospace Engineering (AE)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5101. GRADUATE SEMINAR (1-0).** May be repeated as often as required. Enrollment is mandatory for first semester graduate students and for students enrolled in thesis, dissertation, or research courses. Purpose is to acquaint peers and faculty with research in progress at U.T. Arlington. During each enrollment after the first, students present progress reports on their research. The last report serves as a "dry run" for the oral defense.

**5301. ADVANCED TOPICS IN AEROSPACE ENGINEERING (3-0).** May be repeated for credit as topics change. Topics include: hypersonic aerodynamics, transonic aerodynamics, unsteady aerodynamics and optimum aerodynamic shapes.

**5302. ADVANCED FLIGHT MECHANICS (3-0).** Basic dynamics of vehicles, flight path analysis and optimization. Prerequisite: permission of department.

**5303. AERODYNAMICS OF WINGS AND BODIES (3-0).** Application of classical potential theory to the analysis of the aerodynamics of wings and bodies. Knowledge of complex variable theory assumed.

**5309. FLIGHT VEHICLE DESIGN (3-0).** Given a set of requirements such as payload, range, speed, takeoff and landing distances, etc., a designer must conceive of a vehicle configuration that will meet or exceed the requirements. Aerodynamics, propulsion, flight performance, stability and control, structures, and vehicle systems, as they pertain to the vehicle being designed, will be introduced. Prerequisite: permission of the instructor.

**5311. ADVANCED TOPICS IN ASTRONAUTICS (3-0).** Topics include orbital mechanics, Keplerian mechanics, orbit determination, perturbations, numerical techniques, and applied optimal estimation.

**5312. ANALYTICAL METHODS IN MECHANICS (3-0).** Principles of dynamics of particles and particle systems; Lagrangian and Hamiltonian mechanics; canonical transformations; dynamic system stability; and introduction into dynamical systems analysis using methods such as phase space analysis, surface of sections, etc.

**5313. FLUID DYNAMICS (3-0).** Basic conservation laws, flow kinematics, special forms of the governing equations, two dimensional potential flows, surface waves and some exact solutions of viscous incompressible flows. Also offered as ME 5313. Credit will be granted only once.

**5314. FRACTURE MECHANICS IN STRUCTURAL DESIGN (3-0).** Linear elastic fracture mechanics, general yielding fracture mechanics, damage tolerance and durability design, fail safe and safe life design criteria, analysis of fatigue crack growth, residual strength analysis. Also offered as ME 5314.

**5315. FUNDAMENTALS OF COMPOSITES (3-0).** Fundamental relationships between the mechanical behavior and the composition of multiphase media; failure criteria discussed. Also offered as ME 5348.

**5319. ADVANCE FINITE ELEMENT METHODS (3-0).** Continuation of AE 5330. Modeling of large systems, composite and incompressible materials, substructuring, mesh generation, solids applications, nonlinear problems. Prerequisite: AE 5330 or ME 5310 equivalent. Also offered as ME 5319.

**5321. ENGINEERING VECTOR AND TENSOR ANALYSIS (3-0).** Introduction to the related topics of vector analysis, matrix algebra, and three-dimensional tensor analysis. Material covered includes curvilinear coordinates, differential and integral operations; transformation properties of tensors; invariance, eigenvalues, and eigenvectors; isotropy. Theory is illustrated with engineering examples. Also offered as ME 5328. Credit will be granted only once.

**5322. AEROELASTICITY I (3-0).** Math models for the steady aerodynamics and structural stiffness of aircraft wings are presented and combined into a static aeroelastic math model. Loss of wing lift due to static aeroelasticity as well as the structural instability called aeroelastic divergence are covered.

**5324. DYNAMIC AND STATISTICAL DATA ANALYSIS (3-0).** Uncertainty and error analysis, transducers, signal conditioning, analog and digital data acquisition techniques and systems, statistical analysis of random data in time and frequency domains. Also offered as ME 5334. Credit will be granted only once.

**5325. ADVANCED COMPOSITES (3-0).** Review of current state-of-the-art applications of composites: composite structural analysis; structural properties, damage characterization and failure mechanism; stiffness loss due to damage, notched sensitivity; delamination; impact; fatigue characteristics; composite material testing; material allowables; characteristics of composite joints. Also offered as ME 5325 and MSE 5349. Credit will be granted only once. Prerequisite: ME 5348 or MSE 5348 or AE 5315 or permission of the instructor.

**5326. ADVANCED PROPULSION (3-0).** Development of thrust and efficiency equations, thermodynamic cycle analysis, cycle design methods of aerospace propulsion systems, component performance analysis methods, component matching and dynamic interactions, and vehicle/propulsion-system integration.

**5327. COMPUTATIONAL AERODYNAMICS I (3-0).** Solution of engineering problems by finite-difference methods, emphasis on aerodynamic problems characterized by single linear and non-linear equations, introduction to and application of major algorithms used in solving aerodynamics problems by computational methods. Prerequisite: consent of instructor.

**5328. COMPUTATIONAL AERODYNAMICS II (3-0).** Review of the fundamental equations of aerodynamics, development of methods for solving Euler, boundary-layer, Navier-Stokes, and parabolized Navier-Stokes equations, application to practical aerodynamic analysis and design problems. Prerequisite: AE 5327 or consent of instructor.

**5329. GRID GENERATION METHODS IN AERODYNAMICS (3-0).** Generation of grids for numerical solution of aerodynamic analysis and design problems, generation of grids by algebraic methods, solution to differential and integral equations, application to aerodynamic flow field analysis. Prerequisite: graduate standing or consent of instructor.

**5330. FINITE ELEMENT METHODS (3-0).** Finite element method in the study of static response of complex structures and of continual applications to field problems; analytical methods emphasized, and digital computer application undertaken. Also offered as ME 5310.

**5331. STRUCTURAL DYNAMICS (3-0).** Natural frequencies; forced and random response of complex structural systems studies through the use of the finite element method; computational aspects of these problems discussed, and digital computer applications undertaken. Also offered as ME 5311.

**5332. HYPERSONIC FLOW (3-0).** General features of hypersonic flow fields. Inviscid hypersonic flow: thin shock layer theory, Newtonian flow, constant density solutions, small disturbance theory, method of characteristics. Prerequisite: consent of instructor.

**5335. LINEAR SYSTEM THEORY (3-0)** To equip the student with knowledge of systems applications of the state-space concept and real-time solution techniques. State-space formulations, reference trajectory, linearization, linear vector spaces, the state transition matrix and its properties; and controllability and observability concepts treated. Also offered as ME 5307. Credit will be granted only once.

**5336. KALMAN FILTERING (3-0).** Kalman filter design and implementation. Optimal filtering for discrete-time and continuous-time dynamical systems with noise. Wiener filtering. State-space determination. Prerequisites: Permission of instructor. Also offered as ME 5336 and EE 5322. Credit will be granted only once.

**5337. TOPICS IN NONLINEAR SYSTEMS ANALYSIS AND CONTROLS (3-0).** Nonlinear Systems; Phase Plane Analysis; Poincare-Bendixon Theorems; Nonlinear System Stability; Limit Cycles and Oscillations; Center Manifold Theorem, Lyapunov Methods in Control; Variable Structure Control; Feedback Linearization; Backstepping techniques.

**5338. OPTIMAL CONTROL OF SPACECRAFT MANEUVERS (3-0).** Linear and Nonlinear Optimization methods; Optimal Control; Continuous Time Riccati Equation; Bang-Bang Control; Singular Arcs; Differential Inclusions; Collocation techniques; Design of optimal spacecraft trajectories.

**5340. STRUCTURAL ASPECTS OF DESIGN (3-0).** Emphasis on determination of stresses and prediction of failure in machine and structural components; stress-strain relations in elastic and plastic regions; static failure and failure criteria; residual stress and strain due to yielding; contact stress; notched sensitivity; strain-fatigue life relationship; characteristics of crack in structural components; creep and creep rupture. Also offered as ME 5339.

**5341. AEROSPACE STRUCTURES (3-0).** May be repeated for credit as topics change. Topics may include: the static and dynamic response of structural members and machine elements with and without damage under complex loads. Normal mode method for undamped and proportionally damped systems, component mode synthesis, generally damped systems, complex modes, effect of design modification on system response. Finite element method in the study of the static response of complex structures and of continua; applications to field problems; analytical methods emphasized, and digital computer application undertaken.

**5342. GASDYNAMICS (3-0).** Review of fundamental compressible flow theory, method of characteristics for perfect gases, the Rankine-Hugoniot conditions, linearized flow theory. Also offered as ME 5342.

**5343. HIGH-TEMPERATURE GASDYNAMICS I (3-0).** Surveys kinetic theory, statistical mechanics, and chemical reaction rate theory. Application to the prediction of thermodynamic properties of gases and the analysis of problems in high-temperature gasdynamics.

**5348. HYPERSONIC PROPULSION (3-0).** Design and performance analysis of propulsion systems for sustained flight at hypersonic speeds, airframe/propulsion system integration, supersonic combustion, finite-rate chemistry effects, radiative cooling.

**5350. HIGH TEMPERATURE COMPOSITES (3-0).** Constitutive behavior of high temperature composites, manufacturing, current limitations and advances, thermal fatigue, long term stiffness and strength, damage tolerance and durability.

**5351. ANALYTIC METHODS IN ENGINEERING (3-0).** Introduction to advanced analytic methods in engineering. Methods include multivariable calculus and field theory, Fourier series, Fourier and Laplace Transforms. Prerequisite: undergraduate degree in engineering, physics, or mathematics. Also offered as ME 5331.

**5352. ENGINEERING ANALYSIS (3-0).** Introduction to partial differential equations and complex variable theory with application to modeling of physical systems. Prerequisite: undergraduate degree in engineering, physics, or mathematics. Also offered as ME 5352.

**5360. MULTIDISCIPLINARY INVERSE DESIGN AND OPTIMIZATION (3-0).** For a new design of any realistic device to be competitive, it must satisfy a number of often conflicting requirements, objectives, and constraints. This course offers a variety of basic concepts and methodologies for inverse design and optimization with practical applications in fluid mechanics, heat transfer, elasticity, and electromagnetism. Prerequisites: Programming skills using either FORTRAN, C or C++. Basic courses in fluid mechanics, elasticity or heat transfer. One course involving partial and ordinary differential equations. One course involving numerical analysis for partial differential equations. Consent of instructor. Also offered as ME 5360. Credit will be granted only once.

**5361. MULTIDISCIPLINARY COMPUTATIONS (3-0).** Concurrent engineering analysis involving fluid flow, heat transfer, elasticity, and electromagnetism; design optimization methods for multidisciplinary problems; examples of practical applications. Prerequisites: Reasonable programming skills in FORTRAN or C

(C++). Consent of the instructor. Also offered as ME 5361. Credit will be granted only once.

**5362. GUIDANCE, NAVIGATION AND CONTROL OF AEROSPACE SYSTEMS (3-0).** Equilibrium glide trajectories for atmospheric flight. Design of guidance and navigation system for various aerospace vehicles. Discussion of the various guidance systems used in a homing missile seeker system, etc. Equilibrium glide trajectories for atmospheric flight, energy guidance methods. Selection and trade-off between various navigation components such as the IMU, GPS and other navigation components. Basics of Kalman filtering. Prerequisite: AE 5302 or permission of instructor.

**5363. INTRODUCTION TO ROTORCRAFT ANALYSIS (3-0).** History of rotorcraft. Behavior of the rotor blade in hover and forward flight. Rotor configurations, dynamic coupling with the fuselage, elastic and aeroelastic effects. Also listed as ME 5363. Credit will be granted only once.

**5191, 5291, 5391. ADVANCED STUDIES IN AEROSPACE ENGINEERING.** May be repeated for credit. May be graded P/F. Graded R.

**5398, 5698, 5998. THESIS.** 5398 graded R/F only; 5698 and 5998 graded P/F/R. Prerequisite: graduate standing in aerospace engineering. Co-requisite: AE 5101.

**6322. AEROELASTICITY II (3-0).** Models for the unsteady aerodynamics as well as structural stiffness and mass of aircraft wings are presented and combined into a dynamic aeroelastic math model. Atmospheric turbulence response, ride quality, wing buffeting, and flutter (dynamic aeroelastic instability) are covered.

**6339. SPECIAL TOPICS IN SPACECRAFT SYSTEMS DESIGN AND ENGINEERING (3-0).** Spacecraft mission design and constraints; Launch windows; Rendezvous and docking; Spacecraft attitude determination and control; Atmospheric and vacuum environments; Flight mechanics and propulsion; Configuration and structural design; Power subsystems and telecommunications.

**6197-6997. RESEARCH IN AEROSPACE ENGINEERING.** May be repeated for credit. Graded P/F/R. Co-requisite: AE 5101.

**6399, 6699, 6999. DISSERTATION.** Prerequisite: admission to candidacy for the Doctor of Philosophy degree. 6399 and 6699 graded R/F only; 6999 graded P/F/R. Co-requisite: AE 5101.

# Program in Biomedical Engineering

[www.uta.edu/biomed\\_eng](http://www.uta.edu/biomed_eng)

## Area of Study and Degrees Biomedical Engineering

M.S., Ph.D.

Biomedical Engineering  
Industrial Internship

## Master's Degree Plans

Thesis and Thesis-Substitute

### Director

Khosrow Behbehani  
220 Engineering Lab Bldg., 817-272-2249

### Graduate Advisor

Hanli Liu  
227 Engineering Lab Bldg., 817-272-2249

### Graduate Faculty

Professors

Behbehani, Chuong

### Associate Professors

Liu, Nelson, Tang

### Assistant Professor

Zuzak

### Adjunct Faculty

(U.T. Southwestern and U.T. Arlington)

Ahrens, Antich, Blomqvist, Cadeddu,  
Cameron, Chiao, Cook, Devarajan,  
Eberhart, Elsenbaumer, Finnegan,  
Franklin, Gall, Garner, Giller, Hagler,  
Horton, Jessen, Johnson, Kondraske,  
Kulkarni, Lucas, Manry, Markin,  
Mason, McColl, Nomura, Ordway,  
Peshock, Peterson, Petroll, Srebro,  
Timmons, Triano, Wallace, Wang

## Objectives

The Biomedical Engineering Program is jointly offered by The University of Texas at Arlington and The University of Texas Southwestern Medical Center at Dallas (U.T. Southwestern). Research and teaching efforts of various departments in the biological, engineering, mathematical, physical, and medical sciences of both institutions are coordinated through the Committee on Graduate Studies in Biomedical Engineering. The goal of the program is to prepare students as biomedical engineers for productive research, development, and teaching careers in academic, industrial, hospital, or governmental positions.

The program includes coursework and research in medical imaging, artificial organs, biosensors, physiological control systems, biomedical signal processing, biomedical instrumentation, rehabilitation, orthopedics, biomechanics, biomaterials and tissue engineering, cell and molecular engineering, genomics, recombinant DNA technology, and neurosciences. Specifically, during the first year of their studies, students in the master's and doctoral programs must select one of the concentration tracks in Biomedical Engineering: 1) Bioinstrumentation, 2) Biomaterials/Tissue Engineering, 3) Biomechanics, 4) Medical Imaging, and 5) Molecular and Computational Biomedical Engineering. An advisor is available to advise students on the relevant courses and the research opportunities in each track.

Depending on the availability of positions with industrial partners, an internship in Dallas/Fort Worth industry prepares students for careers in the biomedical engineering industry.

The master's program is based upon graduate level work in biomedical engineering, life sciences and related physical sciences.

The doctoral program is based upon graduate level work in biomedical engineering, extensive graduate training in the life sciences and related physical sciences. The program is aimed at the development of professional biomedical engineers capable of independent research.

## Admission

Application for admission should be made at either U.T. Arlington or U.T. Southwestern. Normally, the institution through which the student applies and is admitted is the student's home institution.

In addition to admission requirements of the Graduate School, the bachelor's degree held by applicants to the program may be in engineering, biological, physical, or mathematical sciences. Depending on the applicant's background, some preparatory coursework may be required, prior to admission into the program. The UTA Biomedical Engineering Program uses the following guidelines in the admission review process:

### Unconditional Admission

#### Master's Program

1. Minimum undergraduate GPA of 3.0 in the last 60 hours of undergraduate work in an engineering discipline as calculated by the Graduate School.
2. GRE quantitative score greater than 700 and a verbal score of 400 or better.
3. Three favorable letters of recommendation.
4. A TOEFL score of 575 (232 for computer-based testing) or better for international applicants whose native language is not English.

### Doctoral Program

1. Minimum GPA of 3.4 in the last 60 hours taken in the major field of study of engineering or physical sciences as calculated by the Graduate School.
2. GRE quantitative score greater than 775 and a verbal score of 400 or better.
3. Three favorable letters of recommendation.
4. A TOEFL score of 575 (or 230 for computer testing) or better for international applicants whose native language is not English.

### Probationary Admission

#### Master's Program

1. If the applicant meets any two of the above items 1, 2, and 3.
2. A TOEFL score of 575 (or 230 for computer testing) or better for international applicants whose native language is not English.

#### Doctoral Program

1. If an applicant meets any two of the above items 1, 2, and 3.
2. A TOEFL score of 575 (or 230 for computer testing) or better for international applicants whose native language is not English.

### Provisional Admission

An applicant who is unable to supply all required documents prior to the admission deadline, but who otherwise appears to meet admission requirements may be granted provisional admission.

### Deferral

If an applicant does not present adequate evidence of meeting admission requirements, the admission decision may be deferred until admission records are complete or the requirements are met.

### Denial

A candidate may be denied admission if he/she has less than satisfactory performance in two out of the three admission criteria, excluding TOEFL.

### Fellowship

No additional requirements besides what is published by the Graduate School.

### Continuation

The Biomedical Engineering Graduate Program has established certain policies to fulfill its responsibility to graduate highly qualified professional engineers. In addition to the requirements of the Graduate School listed in this catalog under Advanced Degrees and Requirements, each biomedical engineering graduate student who wants to continue in the program must:

1. Maintain at least a B (3.0) overall GPA in all coursework, and
2. Demonstrate suitability for professional engineering practice.

At such time as questions are raised by biomedical engineering graduate faculty regarding either of the above, the student will be notified and will be provided the opportunity to respond to the Committee on Graduate Studies in Biomedical Engineering. The

Committee on Graduate Studies will review the student's performance and make a recommendation concerning the student's eligibility to continue in the program. Appeal of a decision on continuation may be made through normal procedures outlined in the section of this catalog entitled "Grievances Other than Grades."

## Degree Requirements

### Master of Science Degree Plans

Students in the Thesis Degree plan must take a minimum of 32 credit hours, and students in the Thesis-Substitute Degree plan must take a minimum of 33 credit hours as specified below.

**Required Biomedical Engineering:** One laboratory course in biomedical engineering approved by the graduate advisor such as Laboratory Principles (BME 5382) or Tissue Engineering Lab (BME 5365); BME Seminar (BME 5201).

**Biomedical Engineering:** Four courses from the following list consistent with the student's track of study and approval of the Graduate Advisor: Biological Materials, Mechanics, and Processes (BME 5335); Finite Element Applications in Biomedical Engineering (BME 5340); Biosensors and Applications (BME 5345); Modeling and Control of Biological Systems (BME 5350); Digital Control of Biomedical Systems (BME 5351); Digital Processing of Biological Signals (BME 5352); Design and Application of Artificial Organs (BME 5360); Thermoregulation and Bioheat Transfer (BME 5362); Biomaterials and Blood Compatibility (BME 5361); Introduction to Orthopedic Mechanics (BME 5331D); Orthopedic Biomaterials (BME 5332D); Tissue Engineering (BME 5364); Tissue Engineering Laboratory (BME 5365); Process Control in Biotechnology (BME 5366); Biomaterial-Living System Interactions (BME 5370).

**Engineering:** One course from biomedical engineering or other engineering departments, with the approval of the Graduate Advisor.

**Required Life Sciences:** Human Physiology (BME 5309D) and one other life science course with the approval of the Graduate Advisor.

**Thesis Plan:** Directed Research in Biomedical Engineering (BME 5391), re-enroll as needed; Thesis (BME 5698) at the semester in which the student expects to submit and defend the thesis.

**Thesis-Substitute Plan:** Master's Comprehensive Examination (BME 5193); Research Project (BME 5390), re-enroll as needed or a minimum of three hours of Biomedical Internship (6395, 6695 or 6995); and one 3-hour graduate level course from biomedical engineering, life science or engineering with the approval of the Graduate Advisor.

### Doctor of Philosophy Degree Plan

The Ph.D. degree program consists of a minimum of 49 credit hours beyond the bachelor's degree level (exclusive of required Ph.D. exams) and includes the courses as specified below. Course requirements differ for the Molecular and Computational Biomedical Engineering track. See track advisor for details.

**Required Biomedical Engineering:** One laboratory course in biomedical engineering approved by the Graduate Advisor, such as Laboratory Principles (BME 5382) or Tissue Engineering Lab (BME 5365); BME Seminar (BME 5201); Ph.D. Seminar in BME (BME 6103) for at least two semesters.

**Elective Biomedical Engineering:** Six courses from: Biological Materials, Mechanics, and Processes (BME 5335); Finite Element Applications in Biomedical Engineering (BME 5340); Biosensors and Applications (BME 5345); Modeling and Control of Biological Systems (BME 5350); Digital Control of Biomedical Systems (BME 5351); Digital Processing of Biological Signals (BME 5352); Design and Application of Artificial Organs (BME 5360); Thermoregulation and Bioheat Transfer (BME 5362); Biomaterials and Blood Compatibility (BME 5361); Introduction to Orthopedic Mechanics (BME 5331D); Orthopedic Biomaterials (BME 5332D); Tissue Engineering (BME 5364); Tissue Engineering Laboratory (BME 5365); Process Control in Biotechnology (BME 5366); Biomaterial-Living System Interactions (BME 5370).

**Engineering:** One course from biomedical engineering or other engineering departments with the approval of the Graduate Advisor.

**Life Sciences:** Human Physiology (BME 5309D); Biochemistry (BME 5306D) or General Biochemistry I (CHEM 4311) and General Biochemistry II (CHEM 4312); Three additional life science courses are required, unless six hours are taken in Physiology or Biochemistry. Two of these courses may be Human Anatomy BME 5307D and BME 5308D. Other life science courses may also be taken with the approval of the Graduate Advisor.

**Mathematics, Statistics, Computer and Physical Sciences:** A course in statistics and another relevant graduate level course with the approval of the Graduate Advisor.

**Ph.D. Examinations and Dissertation:** All doctoral students must satisfactorily complete the following exams: Doctoral Diagnostic Examination (BME 6194), Doctoral Comprehensive Examination (BME 6195), and Dissertation (BME 6999) at the semester in which the student expects to submit and defend the dissertation.

Although qualified applicants may be accepted into the Ph.D. program without earning the Master of Science in biomedical engineering, all students must satisfactorily pass the Doctoral Diagnostic Examination (BME 6194). This examination will cover all relevant coursework taken by the student. The examination may be written, oral, or both and consists of a timed, written analysis of a major problem in the student's general area of research interest, followed by an oral examination covering the same material. Elements of engineering, physical and biological science, mathematics, computer science and statistics may be included in this examination.

For additional information, applicants and students should contact the BME Graduate Advisor for a copy of the "Information Brochure" for related and amplified information about the graduate program. The information can also be found at [http://www.uta.edu/biomed\\_eng/](http://www.uta.edu/biomed_eng/).

**Note:** In degree plan descriptions, course numbers followed by a D are offered at U.T. Southwestern.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Biomedical Engineering (BME)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5102. INTRODUCTION TO RESEARCH IN BIOMEDICAL ENGINEERING (1-0).** Overview of necessary research tools, including methods of scientific research, formulation of hypotheses, design of experiments, data analysis, biostatistics, library database research, technical writing, and technical paper presentation. Graded P/F only.

**5201. SEMINAR IN BIOMEDICAL ENGINEERING (2-0).** University and guest lecturers speak on topics of current interest in the field of biomedical engineering.

**5191, 5291, 5391. DIRECTED RESEARCH IN BIOMEDICAL ENGINEERING.** Student participates in a research project under the individual instruction of a faculty supervisor. Prerequisite: permission of the instructor.

**5193. MASTER'S COMPREHENSIVE EXAMINATION (1-0).** Individual instruction, directed study, consultation, and comprehensive examination over coursework leading to the Thesis-Substitute Master of Science degree in biomedical engineering. Graded P/F/R only. Required of all Thesis-Substitute MS students.

**5300. SELECTED TOPICS IN BIOMEDICAL ENGINEERING.** Material may vary from semester to semester. May be repeated for credit if different topics are covered for each registration. Prerequisite: permission of the instructor.

**5335. BIOLOGICAL MATERIALS, MECHANICS AND PROCESSES (3-0).** Typical functional behavior of various biological materials, flow properties of blood, bioviscoelastic fluids and solids, mass transfer in cardiovascular and pulmonary systems.

**5340. FINITE ELEMENT APPLICATIONS IN BIOMEDICAL ENGINEERING (3-0).** The course describes the fundamental principles of the finite element method and various numerical modeling techniques. Topics include variational and Galerkin formulations, linear and Hermitian elements, accuracy and convergence. Applications in biological systems and to the design of prosthetic devices are emphasized. Topic areas include linear elasticity, fluid dynamics, heat transfer, and mass transport processes.

**5344. BIOINSTRUMENTATION (3-0).** Fundamental principles of bioinstrumentation, including operational amplifiers and instrumentation amplifiers; measurements of biopotentials; signals and noise in biological systems; mechanical transducers; resistive, inductive, capacitive transducers; measurement of temperature, blood pressure and flow; electrical safety.

**5345. BIOSENSORS AND APPLICATIONS (3-0).** Fundamental principles of biosensors, including electrochemical and fiber-optic sensors. Topics include introduction to fabrication, miniaturization techniques, and discussion of future directions, including semiconductor fabrication and nano-fabrication technology.

**5350. MODELING AND CONTROL OF BIOLOGICAL SYSTEMS (3-0).** Introduction to fundamental methods of modeling, analysis



and control of biological systems. Linear system modeling, state space modeling, stability analysis, basic identification techniques. Examples from cardiopulmonary, visual and motor control systems. Prerequisite: An undergraduate course in linear systems, control theory or consent of the instructor.

**5351. DIGITAL CONTROL OF BIOMEDICAL SYSTEMS (3-0).** Design of control strategies for microprocessor-based medical equipment. Discrete and sampled data systems, Z transform, digital control design methods, stability considerations and closed loop system response. Prerequisite: An undergraduate course in control theory or consent of the instructor.

**5352. DIGITAL PROCESSING OF BIOLOGICAL SIGNALS (3-0).** Fundamental techniques for extraction of useful information from signals acquired from biological systems. Topics include time and frequency domain analysis, cross correlation, spectrum analysis, and convolution. Design of FIR and IIR filters for processing biological signals are described. Examples include cardiac, respiratory, and biomechanical movements. Prerequisite: An undergraduate engineering course in signals and systems analysis or consent of the instructor.

**5360. DESIGN AND APPLICATION OF ARTIFICIAL ORGANS (3-0).** Fundamental principles of fluid mechanics, mass transfer and chemical reaction in engineered biological systems. Simple solutions are developed for the design of artificial ventricular assist devices, total artificial hearts, lungs and kidneys.

**5361. BIOMATERIALS AND BLOOD COMPATIBILITY (3-0).** This course is an introduction to polymer structure and fabrication methods. Blood and tissue interactions with materials, and methods to improve the biocompatibility of materials are discussed.

**5362. THERMOREGULATION AND BIOHEAT TRANSFER (3-0).** This course focuses on the application of engineering analysis to problems in physiological and clinical heat transfer. Hyperthermia (including laser, electromagnetic, and ultrasound heating of tissue), hypothermia (including circulatory arrest and tissue freezing), and other applications are analyzed.

**5364. TISSUE ENGINEERING LECTURE (3-0).** Fundamentals of cell/extracellular matrix interactions in terms of cell spreading, migration, proliferation and function. Soft and hard tissue wound healing and nerve regeneration. Polymer scaffolding materials and fabrication methods. Cell-polymer interactions. In vitro and in vivo tissue culture and organ replacement.

**5365. TISSUE ENGINEERING LAB (0-3).** Polymer extrusion, polymer drug loading, and degradation with drug release kinetics. Each student will be given the opportunity to perform these experiments and to culture cells and test their culture for cell growth, proliferation and function under several different substrate and media conditions.

**5366. PROCESS CONTROL IN BIOTECHNOLOGY (2-3).** Principles and methods of measurement, data acquisition and analysis. Application of control theory in biological systems and in biotechnology processes; control of pressure, flow, temperature, and pH. Prerequisites: An undergraduate course in control theory or consent of the instructor.

**5370. BIOMATERIAL-LIVING SYSTEM INTERACTIONS (3-0).** This course describes current developments in molecular structure and organization at synthetic material interfaces with tissues and the subsequent influences on cells and cell membranes. It is designed to lay the groundwork for an improved understanding of events at the biomaterial-living system interface.

**5372. DRUG DELIVERY.** The mathematics of diffusion through various types of biological media is discussed. Diffusion of drug from many of the current delivery devices to either systemic or localized

targets is mathematically modeled. Various types of drug delivery devices such as microspheres, nanoparticles, films, foams, and fibers are reviewed. Intracellular delivery and targeting is discussed. Pharmacokinetic drug distribution models are used to describe drug distributions as a function of time. Drug modifications are briefly discussed.

**5382. LABORATORY PRINCIPLES (0-9).** Introduction to fundamental biomedical engineering laboratory procedures including human studies and animal surgery; includes clinical laboratory projects; data collection, analysis, and interpretation. Prerequisite: permission of the instructor.

**5390. RESEARCH PROJECT (0-9).** Taken by students enrolled in the non-thesis option for the MS degree. Individual instruction in research and/or instrumentation development and evaluation conducted under supervision of the instructor. A final report required. Graded P/F/R. Prerequisite: permission of the instructor.

**5398, 5698 THESIS.** 5398 graded R/F only; 5698 graded P/F/R. Prerequisite: graduate standing in biomedical engineering.

**6103. Ph.D. SEMINAR IN BIOMEDICAL ENGINEERING (1-0).** Students will be assigned to participate in the journal clubs and medical grand rounds relevant to their areas of research in Biomedical Engineering. Graded P/F only. Prerequisite: Ph.D. student status.

**6194. DOCTORAL DIAGNOSTIC EXAMINATION (1-0).** Individual instruction, directed study, consultation, and diagnostic examination. Graded P/F/R only. Required of all doctoral students in the semester when they take any portion of the diagnostic examination.

**6195. DOCTORAL COMPREHENSIVE EXAMINATION (1-0).** Individual instruction, directed study, consultation, and comprehensive examination on a detailed prospectus of proposed dissertation research as well as an oral examination. Graded P/F/R only. Required of all doctoral students in the semester when they take the comprehensive examination. Prerequisite: BME 6194.

**6197, 6297, 6397, 6697, 6997. RESEARCH IN BIOMEDICAL ENGINEERING.** Individually approved research projects leading to a doctoral dissertation in the area of biomedical engineering. Graded P/F/R.

**6395, 6695, 6995. INTERNSHIP IN BIOMEDICAL ENGINEERING.** Students are placed with a biomedical engineering company or a hospital to gain firsthand industrial or clinical engineering experience. The company or hospital assigns projects, and a faculty member monitors the student's progress. Students register for 3 (BME 6395), 6 (BME 6695), or 9 (BME 6995) credit hours during each semester. Prerequisite: completion of at least 9 graduate credit hours in BME and good standing in the graduate program.

**6399, 6699, 6999. DISSERTATION.** Preparation and submission of a doctoral dissertation in an area of biomedical engineering. 6399 and 6699 graded R/F only; 6999 graded P/F/R. Prerequisite: admission to candidacy for the Ph.D. in Biomedical Engineering.

**6499. DISSERTATION.** Preparation and submission of a doctoral dissertation in an area of biomedical engineering. This course is only to be taken by students preparing a dissertation for submission that is supervised primarily by a University of Texas Southwestern Medical School faculty member and must be taken concurrently with a 5-hour dissertation course at that institution. To satisfy requirement that a P be awarded in a 9-hour dissertation course in their final semester of enrollment, a student must be concurrently enrolled in this course and the 5-hour dissertation course at the University of Texas Southwestern Medical School and receive a P in both courses at the end of that semester. If a P is not awarded in both classes, the two classes must be repeated until P grades are concurrently awarded. Graded P/F/R.

Courses offered at The University of Texas Southwestern Medical Center at Dallas (U.T. Southwestern):

- BME 5300D. Special Topics in Biomedical Engineering
- BME 5396D. Individual Laboratory Projects
- BME 5363D. Digital Processing of Medical Images
- BME 5306D. Biochemistry
- BME 5307D. Human Anatomy Lectures
- BME 5308D. Human Anatomy Laboratory
- BME 5309D. Human Physiology
- BME 5331D. Introduction to Orthopedic Mechanics
- BME 5332D. Orthopedic Biomaterials.
- BME 5680D. Mammalian Physiology

See the U.T. Southwestern Graduate Catalog for course descriptions.

## Combined Degree Plan: Bachelor of Science in Biology and Master of Science in Biomedical Engineering

This five-year curriculum prepares students for careers in the fast growing biotechnology and biomedical engineering industries. The curriculum also prepares students for medical school and advanced study. Students are required to take courses from engineering, life sciences and liberal arts, culminating in a five-year Master of Science Degree in Biomedical Engineering, including a Bachelor of Science Degree in Biology. The curriculum is offered jointly by the College of Engineering and the College of Science.

## Description

Biomedical engineers use quantitative methods and innovation to analyze and to solve problems in biology and medicine. Students choose the biomedical engineering field to serve people, to partake in the challenge and excitement of working with living systems, and to apply advanced technology to complex problems of medical care. Through this program, students learn the essentials of life science, engineering theory, and the analytical and practical tools that enable them to be successful in the biotechnology and biomedical engineering industries. The program includes coursework in the basic sciences, core engineering, biomedical engineering, and advanced biotechnology disciplines. Both didactic classroom lectures and hands-on laboratory experience are emphasized. Additionally, students are required to take general educational courses in literature, fine arts, history, political science, and social science.

## Career Opportunities

The program prepares students as biomedical engineers for careers in industry, in hospitals, in research facilities of educational and medical institutions, and in government regulatory agencies. It also provides a solid foundation for those wishing to continue for advanced degrees. For those planning to pursue a medical degree, this cross-disciplinary curriculum offers a solid foundation in engineering, which is an advantage in preparing for a medical career.

See the U.T. Arlington Undergraduate Catalog for a more detailed description of this program.

## Objective

The objective of the graduate program in civil engineering is to prepare students for continued professional and scholarly development consistent with their technical interests. Students, with the assistance of a faculty advisor in their area of interest, plan their programs of study in one of the technical areas in civil engineering. Typical program and research areas are:

1. Environmental (water and air quality control, and solid and hazardous materials control);
2. Geotechnical (soil mechanics and foundations);
3. Infrastructure Systems;
4. Structures and Applied Mechanics;
5. Transportation (traffic planning, highways, airports and transit); and
6. Water Resources (hydrology and hydraulics).

Research and continuing education opportunities in the environmental and construction areas are offered through two centers within the department. Information relative to the Advanced Transportation Research and Applications Center of Texas, and the Construction Research Center can be found in the front portion of this catalog (see catalog index).

The department provides the student an opportunity to study advanced and special topics that are on the forefront of technology. These courses carry CE 5300 or CE 6300 numbers and are identified on a student's academic record by both number and course title. Examples of topics offered in the typical program areas are:

**Environmental**—Advanced Dispersion Modeling, Analysis of Pollutant Characteristics, Hazardous Waste Remediation;

**Geotechnical**—Expansive Clays, Soil Chemical Stabilization, Unsaturated Soils, Design of Earth Structures;

**Infrastructure Systems** — Civil Engineering systems to transport people, goods, water, waste disposal, energy and information;

**Structures and Applied Mechanics**—Finite Element Methods, Numerical Methods in Structural Analysis, Structural Dynamics, Composite Structures, Advanced Concrete Design, Hot Rolled/Cold Formed Steel Design;

**Transportation**—Intelligent Transportation Systems, Network Modeling, Urban Operations Research, Vehicular Energy Consumption and Emissions, Transit and Paratransit, Intermodal Systems;

**Water Resources**—Groundwater, Kinematic Wave Theory, Urban Hydrology, Contaminant Transport, Stormwater, Detention Design.

## Admission

### CE Master's Program

#### Unconditional Admission

A student must meet the following requirements for unconditional admission:

1. A Bachelor's Degree in Civil Engineering (Applicant with an appropriate Bachelor's Degree in another discipline is considered, subject to satisfactory completion of deficiency courses for area of interest.)
2. An undergraduate GPA of 3.0 on a 4.0 scale, as calculated by the Graduate School, is typical of a successful applicant.
3. A Graduate Record Exam (GRE) Quantitative score of 600 is typical of a successful applicant.

## Department of Civil and Environmental Engineering

[www-ce.uta.edu](http://www-ce.uta.edu)

### Area of Study and Degrees

Civil Engineering

M.S., M. Engr., Ph.D.

### Master's Degree Plans

Thesis (M.S.) and Non-Thesis (M. Engr.)

### Chair

Siamak A. Ardekani

425 Nedderman Hall, 817-272-5055

### Graduate Advisor

Ernest C. Crosby

417 Nedderman Hall, 817-272-2201

### Graduate Faculty

#### Professors

Ardekani, Matthys,

Qasim, Williams

#### Associate Professors

Crosby, Kruzic,

Puppala, Spindler

#### Assistant Professors

Abolmaali, Hoyos,

Mattingly, Sattler

#### Professor and President Emeritus

Nedderman

#### Professors Emeritus

Everard, Huang, Parker

4. A Graduate Record Exam Verbal score of 450 is typical of a successful applicant.
5. For applicants whose native language is not English, a minimum score of 550 on the written Test of English as a Foreign Language (TOEFL), 220 on the computer TOEFL, 40 on the TSE-A, 50 on the SPEAK, 450 on Verbal GRE, 85 on METLAB (Michigan English Language Assessment Battery), or 7 on the IELTS (International English Language Testing System). (METLAB and IELTS are used only when other tests are not available in the applicant's country.)
6. Favorable letters of recommendation from people familiar with the applicant's academic work.
7. Statement of Purpose or Research Interest.

### Probationary Admission

If an applicant does not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission may require that the applicant receive a B or better in at least their first 9 hours of graduate coursework at UTA, take additional English courses, and/or deficiency courses as required.

### Provisional Admission

An applicant unable to supply all required documentation prior to the admission deadline, but whom otherwise appears to meet admission requirements may be granted provisional admission.

### Deferred Admission

A deferred application decision may be granted when a file is incomplete or when a denied decision is not appropriate.

### Denial of Admission

A candidate may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above.

### Waiver of GRE Admission

A waiver of GRE admission may be granted to a UTA graduate applicant from a UTA feeder program for a CE degree. Applicant must have a GPA of 3.0 (on a scale of 4.0) in overall, major field, all advanced work, and in the last 60 hours of coursework at UTA. This admission must occur within three years of graduation.

### Advanced Admission

An Advanced Admission of Outstanding Undergraduates may be granted to a UTA graduate within one academic year after graduation. The applicant must have a GPA of 3.5 (on a 4.0 scale) in overall work, and in all UTA advanced undergraduate work in the normal feeder undergraduate program for a CE degree.

### Departmental Scholarships and Fellowships

Students that are unconditionally admitted will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must have a GPA of 3.0 in their last 60 undergraduate credit hours (if entering Graduate School within one year of being granted a Bachelor Degree) plus any

graduate credit hours as calculated by the Graduate School. Recipients must maintain at least a 3.0 overall GPA, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain their scholarships and/or fellowships. Additional requirements may be imposed by the department selection committee.

### CE Doctoral Program Unconditional Admission

A student must meet the following requirements for unconditional admission:

1. A Master's Degree or at least 30 hours of graduate coursework in Civil Engineering. (Applicant with a Master's Degree in another discipline is considered, subject to satisfactory completion of deficiency courses for area of interest.)
2. A graduate coursework GPA of 3.5 on a 4.0 scale, as calculated by the Graduate School, is typical of a successful applicant.
3. A Graduate Record Exam (GRE) Quantitative score of 700 is typical of a successful applicant.
4. A Graduate Record Exam Verbal score of 500 is typical of a successful applicant.
5. For applicants whose native language is not English, a minimum score of 550 on the written Test of English as a Foreign Language (TOEFL), 220 on the computer TOEFL, 40 on the TSE-A, 50 on the SPEAK, 500 on Verbal GRE, 85 on METLAB (Michigan English Language Assessment Battery), or 7 on the IELTS (International English Language Testing System). (METLAB and IELTS are used only when other tests are not available in the applicant's country.)
6. Favorable letters of recommendation from people familiar with the applicant's academic work and/or professional work.
7. Statement of Purpose or Research Interest.

### Probationary Admission

If an applicant does not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission may require that the applicant receive a B or better in at least their first 9 hours of graduate coursework at UTA, take additional English courses, and/or deficiency courses as required.

### Provisional Admission

An applicant unable to supply all required documentation prior to the admission deadline, but whom otherwise appears to meet admission requirements may be granted provisional admission.

### Deferred Admission

A deferred application decision may be granted when a file is incomplete or when a denied decision is not appropriate.

### Denial of Admission

A candidate may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above.

### Departmental Scholarships and Fellowships

Students that are unconditionally admitted will be eligible for available scholarship and/or fellowship support. Award of scholarships

or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must have a GPA of 3.0 in their graduate credit hours. Recipients must maintain at least a 3.5 overall graduate GPA in courses taken as a doctoral student and enroll in a minimum of 6 hours of coursework in both long semesters to retain their scholarships and/or fellowships. Additional requirements may be imposed by the department selection committee.

## Grade Requirements and Continuation

The Civil Engineering Graduate Program has established rules, regulations, policies, and procedures for continuation in the graduate program and fulfilling graduation requirements. These can be found in the Civil Engineering Graduate Handbook available in the Civil and Environmental Engineering Office. In addition to the requirements of the Graduate School listed elsewhere, to continue in the program each civil engineering graduate student must:

1. Maintain an overall GPA of 3.0 or higher for the Master's program and 3.5 or higher for the Ph.D. program in all coursework undertaken and all coursework on his/her approved program of study.
2. Accumulate no more than three deficiency points as defined below.

A student will be declared ineligible for further graduate study in civil engineering and will be dismissed from the civil engineering graduate program if he/she accumulates grade deficiency points greater than three. Any grade of C or X is one deficiency point, any grade of D is two deficiency points, and any grade of F is three deficiency points. Deficiency points may not be removed from the student's record by repeating a course or by completing additional coursework.

No organized course in which a grade of P is received can be used to satisfy course requirements for a graduate degree in civil engineering.

## Degree Requirements

The responsibility rests with each student for knowing the rules, regulations, and filing deadlines of the Graduate School and the Civil Engineering Committee on Graduate Studies (see Civil Engineering Graduate Handbook available in Civil and Environmental Engineering Office). Requirements of the Graduate School and the Civil Engineering Committee on Graduate Studies must be met. The degrees offered and minimum course requirements are identified in the following paragraphs.

The Master of Science degree is a research-oriented program in which completion of a thesis is mandatory. The program consists of a minimum of 24 credit hours of coursework and an acceptable thesis (six credit hours). The Master of Engineering degree is an engineering practice-oriented program requiring a minimum of 36 credit hours. A maximum of six hours may be a special project. A final program examination is required of all master's degree candidates. Thesis degree candidates will be required to present an oral defense of the thesis. Non-thesis degree candidates will fulfill the program examination

requirement upon the successful completion of CE 5193, Master's Comprehensive Examination. Candidates must enroll in CE 5193 in the semester they intend to graduate.

The Ph.D. degree is a research degree and, as such, requires the candidate to successfully carry out original, independent research in an area acceptable to the civil engineering faculty. Normally, a minimum of one year of advanced coursework beyond the master's degree is required.

## Dual Program Degree

Students in the Civil Engineering program may participate in a dual degree program whereby they can earn a Master's Degree in Civil Engineering and a Master of City and Regional Planning. By participating in a dual degree program, students can apply a number of semester hours jointly to meet the requirements of both degrees, thus reducing the total number of hours required to earn both degrees separately. The number of hours that may be jointly applied ranges from six to 18 hours, subject to the approval of each program's Committee on Graduate Studies and Graduate Advisor. Those interested in the dual degree program should consult the appropriate graduate programs for further information on course requirements, including information regarding which courses are suitable for joint application of credit hours.

To participate in the dual degree program, students must make a separate application to each program, be accepted by each program, and must submit separate Programs of Work for each degree showing only courses that meet requirements for the specified degree, including those joint courses that meet requirements for both degrees. A student must be admitted to the second program before completing more than 15 semester hours in the first, exclusive of leveling, deficiency, or foundation courses, and must complete the second degree within one academic year following completion of the first. See also the statement on "Dual Degree Programs" in the general admission section of this catalog.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

### Civil Engineering Courses by Area of Study

Structures and Applied Mechanics: 5301, 5303, 5304, 5305, 5306, 5307, 5308, 5309, 5310, 5311, 5312, 5314, 5315, 6351, 6352, 6353.

Transportation: 5330, 5331, 5332, 5333, 5335, 5336, 5337, 5338, 6306, 6308, 6309.

Environmental: 5316, 5317, 5318, 5319, 5320, 5321, 5322, 5323, 5324, 5325, 5327, 5328, 5329, 6323, 6329.

Geotechnical: 5363, 5364, 5365, 5366, 5367, 5368, 5370, 5371, 5372, 5373, 6311, 6312.

Water Resources: 5346, 5347, 5348, 5352, 5353, 5354, 5355, 6314.

Infrastructure: 5344, 5345.

### Civil Engineering (CE)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5191, 5391. ADVANCED STUDIES IN CIVIL ENGINEERING.** Individual studies of advanced topics under the supervision of a professor or professors. Prerequisite: consent of instructor. Graded P/F/R.

**5193. MASTER'S COMPREHENSIVE EXAMINATION (1-0).** Directed study, consultation, and comprehensive examination over coursework leading to the Master of Engineering degree in civil engineering. Required of all Master of Engineering students in the semester they plan to graduate. Graded P/F/R.

**5300. TOPICS IN CIVIL ENGINEERING (3-0).** Topics of current interest in the field of civil engineering. The subject title is listed in the class schedule and in the student's record. Topics vary. May be repeated for credit when topic changes. Prerequisite: consent of instructor.

**5301. ENERGY METHODS IN APPLIED MECHANICS (3-0).** Minimum potential energy, principle of complementary energy. Castigliano's Theorem, and variational principles. Also Hamilton's principles and Lagrange's equations. Prerequisite: consent of instructor.

**5303. MATRIX METHODS FOR STRUCTURES (3-0).** Stiffness and flexibility methods of structural analysis by using matrix algebra. Prerequisite: CE 3341.

**5304. STRUCTURAL DESIGN IN LIGHT GAGE STEEL (3-0).** Design course for cold formed steel structures. Includes post buckling, plate behavior of stiffened and unstiffened elements, columns, braced and unbraced beams, connectors, and shear diaphragms. Building Codes and related recommended practice documents. Prerequisite: CE 4348.

**5305. COMPOSITE STRUCTURES IN CIVIL ENGINEERING (3-0).** A design synthesis course for fiber reinforced plastics in civil engineering structures. Topics include types of plastics and composites, structural behavior, analysis and design of flat sandwich structures, axially loaded members, beam-columns, and building connections. Building Codes and related recommended practice documents. Prerequisite: CE 3341.

**5306. STRUCTURAL STEEL DESIGN (3-0).** The basic design course for steel structures emphasizing Load Resistant Factor Design Method. Topics include tension members, compression members, flexural members, and simple connections. Building Codes and related documents. Credit not granted for both CE 5306 and 4348. Prerequisite: CE 3341.

**5307. STRUCTURAL TIMBER DESIGN (3-0).** Covers grade and design properties of structural lumber; design criteria using timber; design of bending and compression members; connectors design; design of glued laminated timber, box beams, stressed-skin panels, shear walls, and trusses. Prerequisite: CE 3341.

**5308. MASONRY STRUCTURES (3-0).** Includes masonry unit types and grades, mortar types, reinforcing and connectors, and beam, column, arch, bearing wall design. Structural behavior and standard construction practices. Plain and reinforced masonry, Building Codes and recommended practice documents. Prerequisite: CE 3341.

**5309. PRESTRESSED CONCRETE (3-0).** Discussions concerning materials and methods used in prestressing; design of sections for flexure, shear, anchorage, and torsion; camber, deflections and cable layouts, simple spans, continuous beams, and prestressed tanks. Prerequisite: CE 4347.

**5310. STRUCTURAL STABILITY (3-0).** Covers classical fundamental topics such as: Buckling of Columns; Energy Method for Stability Analysis; Beam-Columns; Structural System Stability (Buckling of Frames); Lateral Torsional Buckling; Buckling of Plates; Buckling of Axially Compressed Cylindrical Shells; and recent advances in stability problems. Prerequisite: CE 3311.

**5311. ADVANCED STEEL DESIGN (3-0).** A design synthesis course for metal structures. Topics include beam columns, building connections, plastic design, rigid frame, and multistory building design. Building Codes and related documents. Prerequisite: CE 4348.

**5312. ADVANCED CONCRETE DESIGN (3-0).** Includes structural components such as beams, columns, footings and walls using the ultimate strength method; truss model for shear and torsion, development and anchorage; structural systems such as continuous beams, slabs, slender columns, two-way slabs, yield-line theory and shear friction. Prerequisite: CE 4347.

**5314. STEEL DESIGN II (3-0).** Covers torsional design of beams, beams with web holes, composite design of beams, lateral-torsional buckling of beams, plate buckling, column design and behavior, frame stability, bracing requirements for compression members. Prerequisite: CE 4348.

**5315. ADVANCED MECHANICS OF MATERIALS (3-0).** Analysis of stresses and strains at a point, stress-strain relationships, stresses due to various loading conditions, theories of failure, energy methods, shear center, unsymmetrical bending, curved beams, torsion and buckling problems. Credit not granted for both CE 5315 and 4324. Prerequisite: CE 3311.

**5316. WATER SUPPLY AND TREATMENT PLANT DESIGN (3-0).** Theory and design of community water supply systems. Design of treatment facilities, equipment selection and distribution network, and cost estimates. Credit not granted for both CE 4356 and 5316. Prerequisites: CE 3131 and 3334.

**5317. WASTEWATER TREATMENT PLANT DESIGN (3-0).** Effluent quality standards, and theory and design of wastewater treatment plants. Design and layout of wastewater treatment systems using manufacturers' catalogs, and cost estimates. Credit not granted for both CE 4357 and 5317. Prerequisites: CE 3131 and 3334.

**5318. PHYSICAL-CHEMICAL PROCESSES I (3-0).** Principles of unit process modeling using reactor and kinetic theory, and theory and design of mixing, flocculation, sedimentation, filtration, gas transfer, adsorption, ion exchange, and disinfection. Prerequisites: CE 3131 and 3334 or consent of instructor.

**5319. PHYSICAL-CHEMICAL PROCESSES II (3-0).** Principles of water chemistry applied to the theory and design of unit processes including coagulation, precipitation, corrosion, oxidation-reduction, and membrane processes. Prerequisites: CE 3131 and 3334 or consent of instructor.

**5320. SOLID WASTE MANAGEMENT (3-0).** Technical aspects of current practices and new developments in the management of solid waste facilities. Theory and design of solid waste collection, transfer, disposal and recovery, and reuse systems. Prerequisites: CE 3131 and 3334 or consent of instructor.

**5321. ENGINEERING FOR ENVIRONMENTAL SCIENTISTS (3-0).** Fundamental principles of engineering science applicable to the comprehension and design of engineered environmental systems. Includes water and air quality indices; kinetic and reactor theory; mass and energy balances; fluid system theory; and applications of physical, chemical and biological processes in the design of engineered environmental systems. May not be used to satisfy any of the requirements for a graduate degree in Civil Engineering. Prerequisites: PHYS 1442, CHEM 1442, MATH 2425.

**5322. AIR POLLUTION METEOROLOGY AND CHEMISTRY (3-0).** Designed to give students an understanding of how pollutants travel and react in the atmosphere. Topics include: meteorological variables impacting pollutant concentrations in the atmosphere, such as atmospheric stability, turbulence and wind speed; species removal/deposition; chemistry of ozone formation, acid deposition; ozone layer depletion; and dispersion modeling introduction. Prerequisite: CE 5328.

**5323. AIR POLLUTION DISPERSION MODELING (3-0).** Dispersion models are mathematical tools for predicting air pollutant concentrations, based on meteorology and sometimes chemistry, to evaluate health impacts. Topics include: basic Gaussian dispersion equation; meteorological factors affecting dispersion; stability parameters; plume rise; dispersion equation with chemical reactions/deposition; dispersion from linear sources (roadways); software; and case study. Prerequisite: CE 5328.

**5324. TRANSPORTATION AND AIR QUALITY (3-0).** Generation of pollutants in gasoline and diesel engines. Emission estimation via measurement and modeling (MOBILE 6). Prediction of pollutant concentrations near roadways. Vehicle emission control using alternative engine design, alternate fuels, add-on technology. Travel demand management and transportation control measures for emission reduction. Lectures, discussion of readings, outside speakers.

**5325. BIOLOGICAL PROCESSES (3-0).** Biological processes used in water quality control. Includes principles from microbiology and biochemistry applied to suspended and attached growth systems. Prerequisite: CE 5318.

**5327. AIR POLLUTION CONTROL ENGINEERING (3-0).** Design of gaseous and particulate control systems, including incinerators, adsorption systems, absorption systems, biofilters, cyclones, electrostatic precipitators, fabric filters and wet scrubbers. Prerequisite: CE 5328.

**5328. FUNDAMENTALS OF AIR POLLUTION (3-0).** An introduction to the air pollution field which encompasses a wide range of topics, including: pollutant types, sources, effects; Clean Air Act; atmosphere and ideal gas law; pollutant measurement; air pollution meteorology and chemistry; dispersion modeling; air pollution control; and mobile sources. Credit not granted for both CE 5328 and 4350. Prerequisite: concurrent enrollment in CE 5318 or 5321.

**5329. ENVIRONMENTAL RISK BASED CORRECTIVE ACTION (3-0).** Process for the assessment and response to contamination; integrating risk and exposure practices to ensure protection of human health and environment. Includes characterization, EPA tier approach, general aspects of toxicology, dose exposure, pathways, receptors, migration and risk assessment. Prerequisite: Consent of instructor.

**5330. CHARACTERISTICS OF TRAFFIC (3-0).** The fundamental elements of traffic—the driver, the vehicle, and the roadway—are considered and then extended into studies of streams of traffic flow. Techniques of conducting traffic engineering studies, including methods of measuring speed, volume, and density, are covered along with methods for the determination of capacity on freeways and rural highways (uninterrupted flow facilities). Parking and accident studies are also included. Prerequisite: CE 3302.

**5331. TRAFFIC ENGINEERING OPERATIONS (3-0).** Methods of traffic regulation and control optimization. Traffic laws, motorist communication by means of traffic control devices, and the design and operation of both fixed time and actuated traffic signals at intersections. Analysis and design techniques for intersections using capacity and level of service concepts. Credit will not be granted for both CE 4313 and 5331. Prerequisite: CE 3302.

**5332. HIGHWAY DESIGN (3-0).** Geometric considerations necessary for the design of city streets, highways, and freeways such as the cross sections, vertical and horizontal alignment, sight distances and stopping distances. Includes the design of maneuver areas, channelization, ramps, intersections, and interchanges. Credit will not be granted for both CE 4312 and 5332. Prerequisite: CE 3302.

**5333. TRAFFIC CONTROL SYSTEMS (3-0).** Control algorithms and optimization of splits, offsets, and cycle lengths for arterial progression and traffic signals in networks; computer simulation techniques; problem solving with computer simulation and optimization packages; freeway control using ramp meters and dynamic motorist communications. Prerequisite: CE 5331.

**5335. AIRPORT ENGINEERING (3-0).** Airport master planning, for forecasting air travel demand, airside capacity, passenger terminal design, air traffic control, land access planning and design, landside operations, air cargo facility design. Prerequisite: CE 3302.

**5336. PAVEMENT DESIGN (3-0).** Principles and theoretical concepts of rigid and flexible pavements for highways and airfields; effects of traffic loads, natural forces, and material quality; current design practices (including bituminous mixture design and pavement foundation design); and pavement management systems. Prerequisites: CE 3302, 3261 and 3343.

**5337. URBAN TRANSPORTATION PLANNING (3-0).** Theory and application of a comprehensive urban transportation planning methodology. Basic studies of population dynamics, urban growth, land use, forecasting trip generation and distribution, traffic assignment, mode split, evaluation, simulation models, characteristics of mass transit and other non-auto modes, and system design and evaluation. Credit will not be granted for both CE 4311 and 5337. Prerequisite: CE 3302 or consent of instructor.

**5338. SYSTEM EVALUATION (3-0).** Techniques necessary to perform economic and multi-criteria evaluations of civil engineering projects. These will be used to assess the strengths and weaknesses of different decision-making strategies and analyze contemporary topics and case studies in making civil engineering decisions.

**5344. CONSTRUCTION METHODS: FIELD OPERATIONS (3-0).** Introduction to the methods, equipment, and management techniques used in the construction industry. Topics include equipment operating

characteristics, job site safety, and field management. Credit not granted for both CE 5344 and 4332. Prerequisites: consent of instructor and IE 3312 or equivalent.

**5345. INFRASTRUCTURE EVALUATION, MAINTENANCE AND REHABILITATION (3-0).** This course is designed for engineers and managers involved in infrastructure development, sustainability, and replacement. Topics include inspection, evaluation, maintenance and rehabilitation alternatives for water distribution, waste and water collection, surface and sub-surface drainage, pavements, bridges and culverts.

**5346. OPEN CHANNEL FLOW (3-0).** Open channel hydraulic principles, flow classification, backwater curves, transitions, obstructions, bends, flood flow computations, and urban watershed applications. Credit not granted for both CE 4358 and 5346. Prerequisite: CE 3305 or consent of instructor.

**5347. SURFACE WATER HYDROLOGY (3-0).** Elements of hydrometeorology, infiltration, soil moisture, hydrographs, rainfall runoff relationships, and effects of these factors with regard to water resources, urban watersheds, flood control, and environmental issues. Prerequisite: CE 4331 or consent of instructor.

**5348. GROUNDWATER HYDROLOGY (3-0).** Hydrology and hydrogeology of groundwater to include aquifer and vadose properties and measurements, basic flow systems and solutions, well systems, elementary contaminate transport, water quality, recharge, subsidence, flow system analysis, flow nets, and leaky aquifers. Prerequisite: CE 4331 or consent of instructor.

**5352. WATER RESOURCES INFRASTRUCTURE DESIGN (3-0).** Water supply, distribution and drainage infrastructure design for urban, transportation, airport and agricultural uses. Topics include inlet/outlet structures, culverts, retention and detention storage, soil loss, pump stations, etc. Credit not granted for both CE 4359 and 5352. Prerequisite: CE 4331 or consent of instructor.

**5353. DETENTION AND APPURTENANCE DESIGN (3-0).** Hydraulic principles of retention and detention structures and appurtenances for urban drainage, flood control, wetland enhancement and groundwater recharge areas. Prerequisite: CE 5346 or consent of instructor.

**5354. WATER RESOURCES PLANNING (3-0).** Historical and current water development concepts. Administrative and allocation concerns. General principles and procedures of water resource planning includes regional, multipurpose, economic and systems considerations. Prerequisites: CE 4331 and 3301 or consent of instructor.

**5355. ENVIRONMENTAL PERMITTING (3-0).** Overview of environmental law and regulations and permit development critical to design and construction, such as Stormwater Pollution Prevention and Planning, Environmental Impact (Statements, Assessments and Exclusion), Nationwide Permits, USA COE Permits and related screening models. Credit not granted for both CE 5355 and 4333. Prerequisites: CE 3334 and 4331 or consent of instructor.

**5363. CONSTITUTIVE MODELING OF SOILS (3-0).** Fundamental aspects of elasto-plastic behavior of soils along axisymmetric stress paths, shear strength of soils in light of critical state soil mechanics, and constitutive models to predict soil response under saturated and partially saturated conditions, including Cam Clay and modified Cam Clay models. Prerequisites: CE 3343 or consent of instructor.

**5364. FOUNDATION ANALYSIS AND DESIGN (3-0).** The design, construction, and performance of footings, rafts, and piles founded on or in sands, clays, silts, stratified soils, and weak rock. Includes the influence of various geologic terrain on selecting

foundation type and constructability, in-situ investigations to determine material design parameters, bearing capacity, and settlement of foundations. Credit not granted for both CE 5364 and 4321. Prerequisite: CE 3343 or consent of instructor.

**5365. THEORETICAL SOIL MECHANICS (3-0).** Theory of consolidation, magnitude, time rate, pore pressure dissipation with variable construction rate and layered soils. Secondary compression, preconsolidation, and preloading. Shear strength of soil. Critical state soil mechanics, dilation and strain-softening in drained shear, pore pressure response in undrained shear, including static liquefaction. Prerequisite: CE 3343 or consent of instructor.

**5366. SOIL DYNAMICS (3-0).** Fundamental aspects of mechanical behavior and characterization of soils and earth structures subjected to dynamic loads, including wave propagation in soils, dynamic soil properties, liquefaction of soils, dynamic bearing capacity of shallow foundations, seismic design of retaining walls, and seismic slope stability. Prerequisites: CE 2312 and 3343 or consent of instructor.

**5367. DESIGN OF EARTH STRUCTURES (3-0).** Study of the states of stress and analysis techniques associated with cuts, fills, and retaining structures. Includes slope stability, embankment reinforcement, conventional and reinforced earth retaining walls, excavation bracing, and sheetpile wharf structures. Prerequisite: CE 5365 or consent of instructor.

**5368. UNSATURATED SOIL MECHANICS (3-0).** Fundamental aspects of the mechanical behavior of unsaturated soils, including stress and volumetric state variables, matrix suction measurements and soil-water characteristic curves, shear-strain-strength and volume change responses, and suction-controlled laboratory testing techniques. Prerequisite: CE 3343 or consent of instructor.

**5370. EXPERIMENTAL SOIL MECHANICS (3-0).** Fundamentals of experimental studies of soil behavior, soil properties and their laboratory test methods which include consolidation, direct shear, static triaxial, cyclic triaxial, resonant column, Bender elements and other advanced geotechnical laboratory tests, instrumentation and measurement techniques. Prerequisite: CE 3343 or consent of instructor.

**5371. SOIL BEHAVIOR (3-0).** Fundamental aspects of soil behavior, bonding, crystal structure, surface characteristics, clay mineralogy, soil-water movement, fabric, effective stress concepts, conduction phenomena, consolidation, and shear strength. Prerequisite: consent of instructor.

**5372. GEOSYNTHETICS (3-0).** Geosynthetics properties and testing, design of geotextiles, geogrids, geonets, and geomembranes for applications in separation, pavement, embankment and retaining wall reinforcement, soil stabilization, filtration, drainage and liquid barrier, construction guidelines and case histories. Credit not granted for both CE 5372 and 4322. Prerequisite: CE 3343 or consent of instructor.

**5373. ENVIRONMENTAL GEOTECHNOLOGY (3-0).** Physical and chemical principles of clays, clay mineralogy, coupled flow, hydraulic conductivity, in situ and laboratory tests, chemical transport, adsorption of chemicals, compacted soil liners, geomembrane liners, leachate collection and removal systems, cover systems, other soil remediation methods. Prerequisite: CE 5371 or consent of instructor.

**5395, 5695. MASTER'S PROJECT.** Non-thesis master's degree candidates with approval to include a project in their program. Graded P/F/R. Prerequisites: consent of instructor and approval of Civil Engineering Graduate Advisor.

**5398, 5698. THESIS.** Research and preparation pertaining to the master's thesis. 5398 graded R/F only; 5698 graded P/F/R.



**6197, 6297, 6397, 6697, 6997. RESEARCH IN CIVIL ENGINEERING.** Individual supervised research projects. May be repeated for credit. Prerequisites: consent of instructor and approval of Civil Engineering Graduate Advisor. Graded P/F/R.

**6300. ADVANCED TOPICS IN CIVIL ENGINEERING (3-0).** Topics of current interest in the field of civil engineering. The subject title is listed in the class schedule and in the student's record. Topics vary. May be repeated for credit when topic changes. Prerequisite: consent of instructor.

**6306. PUBLIC TRANSIT PLANNING AND OPERATION (3-0).** Theory and application of technologies used for transit demand analysis, routing, scheduling, evaluation, crew assignment, maintenance strategies, and management. Land-use impact on public transit policy and operation is also introduced. Prerequisite: consent of instructor.

**6308. ANALYTICAL MODELS IN TRANSPORTATION (3-0).** Development and analysis of mathematical models in transportation. Topics include travel demand, trip generation, distribution, mode choice, assignment, plan evaluation, spatial distribution, traffic control and flow models; principles of behavioral, econometric, deterministic, probabilistic, and chaotic simulation models, and their applications. Prerequisite: CE 5337 or consent of instructor.

**6309. TRAFFIC FLOW THEORY (3-0).** Speed, density relationships of vehicular traffic flow; statistical aspects of traffic events and queuing processes; deterministic models and simulation models of traffic flow behavior; applications of flow theory to traffic problem solutions. Prerequisite: consent of instructor.

**6311. ADVANCED FOUNDATION DESIGN (3-0).** Subsurface investigations; advanced design of mat foundations, retaining walls, reinforced retaining walls, anchor tie-backs, driven piles, and piers; destructive and non-destructive tests on deep foundations; group piles, laterally loaded piles, and design of foundations in expansive soils. Prerequisites: CE 4321 or 5364 or consent of instructor.

**6312. IN-SITU TESTING (3-0).** Site characterization, in-situ testing procedures and soil property interpretation methods for standard penetration tests, cone penetration tests utilizing friction cone, piezocone, and seismic cone, dilatometer, vane shear, pressure meter, and bore hole shear tests, non-destructive tests for pavement subgrade characterization. Prerequisite: CE 5370 or consent of instructor.

**6314. STORMWATER MODELING (3-0).** Hydrologic modeling methods and issues, urban watershed modeling, methods of system analysis; analysis of hydrologic components as linear and nonlinear systems, watershed response, kinematic wave; and model parameters optimization. Prerequisites: CE 5346 and 5347.

**6323. HAZARDOUS WASTE MANAGEMENT (3-0).** Sources, chemistry, monitoring, and classifications of hazardous wastes. Discussion of environmental hazards, legal aspects, transportation, detoxification, storage, and disposal and incineration. Prerequisite: CE 5318 or consent of instructor.

**6329. ADVANCED ENVIRONMENTAL ENGINEERING CONTROL PROCESSES (2-3).** Standard laboratory techniques for

unit operations and processes in environmental engineering. Advanced environmental engineering theories and practices, research topics, and methods. Prerequisites: CE 5325 or consent of instructor.

**6351. ADVANCED THEORY OF STRUCTURES (3-0).** Continuation of Theory of Structures I. Study of the theory of arches, rings, tanks, and other circular structures, cable supported systems, and long span continuous structures, classical methods, and energy methods. Prerequisite: CE 3341.

**6352. FINITE ELEMENT METHOD FOR STRUCTURES (3-0).** Structural stiffness, finite elements of a continuum, plane stress and strain, axi-symmetric stress analysis, element shape functions, and various applications. Prerequisite: CE 5303.

**6353. STRUCTURAL DYNAMICS (3-0).** Equation of motion, free vibration of structural systems, structural response to forcing functions, numerical evaluation of dynamic responses for single and multi degree of freedom systems, dynamic response of linear, nonlinear, and inelastic multi degree of freedom structural systems. Prerequisite: CE 5303 or consent of instructor.

**6391. ADVANCED PROJECTS IN CIVIL ENGINEERING.** Projects using and developing emerging technology. Prerequisite: consent of instructor and approval of Civil Engineering graduate advisor. Graded P/F/R.

**6399, 6699, 6999. DISSERTATION.** Preparation of a doctoral dissertation in civil engineering. Prerequisite: admission to candidacy for the Doctor of Philosophy degree. 6399 and 6699 graded R/F only; 6999 graded P/F/R.

A limited number (not to exceed a total of nine semester hours) of the following courses may be applicable toward a graduate degree if approved in advance by the Civil Engineering Graduate Advisor.

**4311. URBAN TRANSPORTATION INFRASTRUCTURE PLANNING**

**4312. STREET AND HIGHWAY DESIGN**

**4313. TRAFFIC ENGINEERING**

**4321. FOUNDATION ENGINEERING**

**4322. APPLICATIONS WITH GEOSYNTHETICS**

**4324. MECHANICS OF MATERIALS II**

**4332. CONSTRUCTION METHODS AND MANAGEMENT**

**4333. INFRASTRUCTURE ENVIRONMENTAL PERMITTING**

**4348. STRUCTURAL DESIGN IN METALS**

**4350. AIR POLLUTION CONTROL ENGINEERING**

**4356. DESIGN OF MUNICIPAL WATER SUPPLY SYSTEMS**

**4357. DESIGN OF MUNICIPAL WASTEWATER TREATMENT SYSTEMS**

**4358. OPEN CONDUIT SYSTEM**

**4359. WATER RESOURCES DESIGN**

# Department of Computer Science and Engineering

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## Areas of Study and Degrees

Computer Science

M.S., Ph.D.

Computer Science and Engineering

M.S., Ph.D.

Software Engineering

M.SW.Engr.

## Master's Degree Plans

Thesis (M.S.) and

Non-thesis (M.S., M.SW.Engr.)

## Chair

Behrooz Shirazi

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## Graduate Advisors

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## Graduate Faculty

### Professors

Ahmad, Carroll,

Chakravarthy, Cook,

Das, Elmasri, Holder,

Kamangar, Kung,

Peterson, Shirazi, Walker

### Associate Professors

Fegaras, Kumar, Weems

### Assistant Professors

Aslandogan, Che, Chen,

Gao, Huber, Lei, Liu,

Oh, Stojanovic, Zaruba

## Objective

The purpose of the graduate programs in Computer Science and Computer Science and Engineering is to facilitate the student's continued professional and scholarly development. The Master of Science (M.S.) programs are designed to extend the student's knowledge and emphasize a particular area of concentration. The Master of Software Engineering (M.SW.Engr.) program is designed to provide the student with the opportunity for professional development in the software engineering field. The Doctor of Philosophy (Ph.D.) programs are designed to prepare the student to conduct research and development in an area of concentration.

Typical areas of concentration include

1. **computer systems:** parallel processing, quality-of-service and resource management in distributed systems, scheduling and load balancing for parallel and distributed systems, tools for parallel programming, performance evaluation, fault-tolerant computing, interconnection networks, multimedia systems, real-time systems, memory system design;
2. **intelligent systems:** neural networks, machine learning, planning, scientific visualization, pattern recognition, natural language processing, multi-agent environments, decision support;
3. **software engineering:** requirements engineering, incremental delivery, conceptual modeling, scenario-based techniques, formal specifications, object-oriented software engineering, design methodologies, software testing, software maintenance, software re-engineering, software processes, real-time systems;
4. **database:** temporal databases, object-oriented databases, database models and languages, distributed database systems, indexing and hashing techniques, conceptual modeling, data security, logic and databases, query optimization, relational design theory, user interfaces, data repositories.
5. **communications:** networks, wireless communication, distributed computing, mobile computing, multimedia systems.

## Admission

The CSE graduate admission committee bases its decision for graduate admission on the following criteria (in no specific order):

1. An overall GPA of 3.0 or higher in undergraduate coursework.
2. A GPA of 3.2 or higher on CS/CSE related coursework in the last two years of undergraduate degree.
3. Relevance of the student's degree (background) to the CSE curriculum.
4. Rigor of the student's bachelor's degree. A four-year degree is considered more rigorous than a three-year degree.
5. Reputation of the university/college that the student has received his/her previous degrees from.
6. GRE General Test:
  - a. GRE quantitative score of at least 700
  - b. GRE verbal score of at least 400
  - c. A sum of verbal and quantitative GRE scores (i.e. scores from parts 6a and 6b combined) of at least 1150 for MS and 1250 for Ph.D. applicants. An applicant can have a minimum score of 700 on the quantitative GRE or a minimum score of 400 on the verbal GRE, but not both. A passing score on the Fundamentals of Engineering (FE) exam is also given consideration.

7. For Ph.D. students, the following are optional. Meeting these criteria will improve both a student's chances of securing admission and receiving financial support.
- Publication in scholarly conferences/journals.
  - A percentile of 80 score or higher on the Computer Science subject GRE.

The above criteria are used as follows in relevance to the three possible admission decisions, i.e., *Unconditional Status*; *Probationary Status*; and *Denied*.

- Unconditional Status:** Applies to an applicant who meets the first six criteria above to a degree satisfactory to the graduate admissions committee.
- Probationary Status:** Applies to an applicant who meets the first six criteria above to a degree satisfactory to the graduate admissions committee but does not fulfill all the deficiency course requirements. It also applies to a student who is accepted with conditions placed on improving one or more of the first six criteria.
- Denied:** Applies to an applicant who does not meet the first six criteria to a degree satisfactory to the graduate admissions committee. However, an applicant's performance on the GRE test will not be used as the sole criteria for denial.

## Fellowships

The basis for granting a Fellowship to a student will be as follows:

- The student is admitted without provisional requirements.
- Relative standing with respect to other qualified applicants.

## Continuation

To fulfill its responsibility to graduate highly qualified professionals, the Department has established certain requirements that must be met by students continuing in the graduate programs. In addition to the requirements of the Graduate School listed elsewhere in the catalog, the Computer Science and Engineering Department has established additional requirements detailed in its Guide to Graduate Programs.

## Degree Requirements

### Master of Science in Computer Science - Thesis

The Master of Science in Computer Science degree program is designed to develop the scholarship and research skills of the student. Thirty-one credit hours, which include one orientation seminar credit and six thesis credits, are required.

### Master of Science in Computer Science and Engineering - Thesis

The Master of Science in Computer Science and Engineering, which is intended for students with a baccalaureate degree in engineering, requires 31 credit hours of which one is orientation seminar and six are thesis credits, and is designed to develop the scholarship and research skills of the student.

### Master of Science in Computer Science - Non Thesis

The Master of Science in Computer Science non-thesis options provide professional development in computer science. The structured option requires 37 credit hours of which one is orientation seminar.

### Master of Science in Computer Science and Engineering

The Master of Science in Computer Science and Engineering non-thesis options are intended for students with an engineering baccalaureate degree. The structured option requires 37 credit hours of which one is orientation seminar.

### Ph.D. (Computer Science)

The Ph.D. in Computer Science continues the development of the student's research capability. Coursework selection in each student's program is designed to support the dissertation area selected by the student.

A minimum of two semesters of full-time study is required during the dissertation phase. There is no foreign language requirement.

### Ph.D. (Computer Science and Engineering)

The Ph.D. in Computer Science and Engineering is available to students with a prior degree in engineering. It contains essentially the same requirements as the Ph.D. (Computer Science) degree except that it permits interdisciplinary research between Computer Science and one or more of the various engineering disciplines.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Computer Science and Engineering (CSE)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5194. ORIENTATION SEMINAR (1-0).** Presentation of computer science research by CSE faculty, students, and invited speakers. Preparation of program of work. Prerequisite: Unconditional admission status in CSE Department or consent of CSE Graduate Advisor. Graded P/F/R.

**5306. OPERATING SYSTEMS II (3-0).** Hardware and software issues in modern operating systems, distributed and networked operating systems, and real time operating systems. Topics may include multithreading, distributed systems, device drivers, object oriented operating systems, advanced file systems, parallel virtual machines, and load balancing. Examples from current popular modern systems and research operating systems will be analyzed. Prerequisite: CSE 3320 or consent of instructor.

**5307. PROGRAMMING LANGUAGE CONCEPTS (3-0).** Study and evaluation of concepts in programming language for modern computer systems. Programming projects are selected from string-based, symbolic, algorithmic, and object-oriented languages. Prerequisite: CSE 3302 or consent of instructor.

**5311. DESIGN AND ANALYSIS OF ALGORITHMS (3-0).** Techniques for analyzing upper bounds for algorithms and lower bounds for problems. Problem areas include: sorting, data structures, graphs, dynamic programming, combinatorial algorithms, introduction to parallel models. Prerequisite: CSE 2320 and 3315, or consent of instructor.

**5314. COMPUTATIONAL COMPLEXITY (3-0).** Sequential and parallel complexity classes (e.g., NP-complete and P-complete) and representative problems in languages, logic and graphs. Reduction techniques. Approximate solutions. Complexity hierarchies. Prerequisite: CSE 2320 and 3315, or consent of instructor.

**5315. NUMERICAL METHODS (3-0).** Selected topics from the theory and practice of using automatic digital computers for approximating arithmetic operations, approximating functions, solving systems of linear and non-linear equations, and solving ordinary and partial differential equations. Prerequisite: CSE 2312 and linear algebra, or consent of instructor.

**5316. MODELING, ANALYSIS, AND SIMULATION OF COMPUTER SYSTEMS (3-0).** Mathematical formalism and techniques used for computer system modeling and analysis. Reviews probability, transform theory, coding theory, and Petri nets. Topics may include knowledge based modeling, validation procedures, various simulation techniques for stochastic process and real-time distributed systems. Prerequisite: CSE 2320, or consent of instructor.

**5317. DESIGN AND CONSTRUCTION OF COMPILERS (3-0).** Review of programming language structures, translation, and storage allocation. Introduction to context-free grammars and their description. Design and construction of compilers including lexical analysis, parsing and code generation techniques. Error analysis and simple code optimizations will be introduced. Prerequisite: CSE 3315 and 3302, or consent of instructor.

**5318. APPLIED GRAPH THEORY AND COMBINATORICS (3-0).** Connected and disconnected graphs; trees; graph planarity; Hamiltonian circuits and Euler tours; coloring; flow and graph optimization algorithms, fundamentals of combinatorics; generating functions and recurrence relations; inclusion-exclusion principle; applications in telecommunications; mobile computing, parallel processing and multiprocessor architectures. Prerequisites: CSE 2320 and 3315 or consent of instructor.

**5321. SOFTWARE TESTING (3-0).** Study of software quality assurance, software testing process, methods, techniques and tools. Topics include formal review techniques, black box testing, white box testing, integration testing, acceptance testing, regression testing, performance testing, stress testings, and testing of object-oriented software. Prerequisite: CSE 5324.

**5322. SOFTWARE DESIGN PATTERNS (3-0).** Study and application of object-oriented software design patterns to software

development and maintenance in the object-oriented paradigm. Prerequisite: CSE 5324.

**5323. SOFTWARE ENGINEERING PROCESSES (3-0).** Introduces software lifecycle models, process disciplines, project management concepts, and applies them by mastering the Personal Software Process (PSP). Prerequisites: CSE 3310 or CSE 5324, and IE 3301 or MATH 3313.

**5324. SOFTWARE ENGINEERING: ANALYSIS, DESIGN, AND TESTING (3-0).** Motivations, principles, and goals of software engineering; technical aspects of software projects, including: review of structured analysis and structured design, emphasis on object-oriented methods of requirements analysis and specification, design, and implementation; software testing concepts; team project. Prerequisite: CSE 2320 and 3315 (or concurrent enrollment), or consent of instructor.

**5325. SOFTWARE ENGINEERING: MANAGEMENT, MAINTENANCE, AND QUALITY ASSURANCE (3-0).** Issues and principles for software management; managerial and support aspects of software projects, including: processes, estimation techniques, planning and scheduling, risk analysis, metrics, and quality assurance. Other topics include: configuration management, verification and validation, and maintenance; team project. Prerequisite: CSE 5324 or consent of instructor.

**5326. REAL-TIME SOFTWARE DESIGN (3-0).** Specification, design, and analysis of real-time systems including real-time logics and decidability of real-time conditions; real-time scheduling approaches, and schedulability analysis, system requirement specifications and languages; procedural and object-oriented methods; specialized analysis techniques for distributed and for control applications; team project. Prerequisite: CSE 5324 or consent of instructor.

**5327. TELECOMMUNICATIONS SOFTWARE DEVELOPMENT (3-0).** General understanding and classification of telecommunications systems and applications. Issues relating to the analysis, design, implementation, and testing of telecommunications software. Prerequisites: CSE 5324 and 5344.

**5328. SOFTWARE ENGINEERING TEAM PROJECT I (1-2).** Apply the knowledge and skills gained in other software engineering courses to synthesize a solution to a significant and realistic problem. Participate in team project activities, including: proposal writing, problem analysis, software requirements specification, software project planning, and preliminary software design. Prerequisite: CSE 5325 (or concurrent enrollment). Open to Master of Software Engineering candidates only.

**5329. SOFTWARE ENGINEERING TEAM PROJECT II (1-2).** Continuation of CSE 5328. Team project activities include: detailed software design, implementation, software quality assurance, software testing, integration, and demonstration. Prerequisite: CSE 5328. Open to Master of Software Engineering candidates only.

**5330. DATABASE SYSTEMS (3-0).** Database system architecture; management and analysis of files, indexing, hashing, and B+-trees; the relational model and algebra; the SQL database language; database programming techniques, database design using Entry-Relationship, extended E-R, and UML modeling; basics of normalization. Introduction to database security, query processing and transaction management. Prerequisite: CSE 2320.

**5331. DBMS MODELS AND IMPLEMENTATION TECHNIQUES (3-0).** DBMS system implementation techniques, including query optimization, transaction processing, concurrency control, buffer management and recovery. Object-oriented, object-relational and XML databases. Introduction to advanced database

models, such as active, distributed, temporal, spatial and data warehousing. Prerequisite: CSE 3330/CSE 5330, or consent of instructor.

**5333. DISTRIBUTED AND PARALLEL DATABASES (3-0).** Distributed database system architecture and design, distributed transaction management and database interoperability; distributed query processing; parallel database architectures and techniques; and parallel algorithms for database operations. Prerequisite: CSE 5330 or consent of instructor.

**5334. DATA MINING (3-0).** Preparing data for mining, using preprocessing, data warehouses and OLAP; data mining primitives, languages and system architecture; data mining techniques including association rule mining, classification/prediction and cluster analysis. Prerequisite: CSE 5330 or consent of instructor.

**5343. REAL-TIME DATA ACQUISITION AND CONTROL SYSTEMS (2-3).** Advanced course in design of microcomputer-based systems. Emphasis is on the application of state-of-the-art microprocessors, microcomputers, and other LSI and VLSI components to real-time, interactive, and/or embedded systems. Prerequisite: CSE 5442 or consent of instructor.

**5344. COMPUTER NETWORKS (3-0).** Study of computer network architectures, protocols, and interfaces. The OSI reference model and the Internet architecture will be discussed. Networking techniques such as multiple access, packet/cell switching, and internetworking will be studied. Discussion will also include end-to-end protocols, congestion control, high-speed networking, and network management. Emphasis will be on Internet and ATM. Prerequisite: CSE 3320 or consent of instructor.

**5346. NETWORKS II (3-0).** This course provides an in depth study and comparison of the two primary networking paradigms, Internet/broadcast and switched, using two technologies, IPv6 and ATM, as representative examples. The course is implementation-oriented, focusing on issues such as routing, broadcast, multicast, mobility, network configuration, and quality of service. Prerequisite: CSE 5344.

**5347. TELECOMMUNICATION NETWORKS DESIGN (3-0).** Design and analysis of telecommunication systems and networks, fundamental graph algorithms, basic concepts of distributed algorithms, centralized and distributed network topology design, routing and multicasting, capacity assignment, network reliability, network performance, modeling and simulation, wireless mobile networks. Prerequisites: CSE 5311, CSE 4344/5344, or consent of instructor.

**5348. MULTIMEDIA SYSTEMS (3-0).** Representations and techniques for processing, communicating, and compression of text, audio, graphics, and video in real time. Project integrating these topics. Prerequisite: CSE 3320.

**5350. COMPUTER ARCHITECTURE II (3-0).** A study of advanced uniprocessor and basic multiprocessor systems. Topics may include memory management systems, pipelined processors, array and vector processors, and introduction to architecture of multiprocessor systems. Prerequisite: CSE 3322 or consent of instructor.

**5351. PARALLEL PROCESSING (3-0).** Covers the theory and practice of parallel processing. Theoretical topics include: abstract models and algorithms for shared memory computation (PRAM); algorithms for various topologies such as meshes and hypercubes; efficiency and speedup analysis. Problem areas include data structures, numerical methods, graphs, combinatorics. Practical topics include synchronization, routing, scheduling, parallelizing serial computations, programming languages. Includes programming exercises using one or more concurrent programming languages, on one or more parallel computers. Prerequisite: CSE 3320 or consent of instructor.

**5353. DISTRIBUTED COMPUTING (3-0).** Programming languages, support components, coordination models, and fundamental algorithms for distributed and clustered systems. Prerequisite: CSE 5306.

**5355. COMPUTER SYSTEM PERFORMANCE EVALUATION (3-0).** Queueing network models and simulation for studying the performance of overall computer systems. Theory and applications of Markov process, Random Walk, Renewal Process, and Birth and Death Process. Topics also include bottleneck identification, capacity planning, hardware selection and upgrade, and performance tuning. Data collection, presentation and interpretation, benchmarking and the proper choice of performance metrics will be emphasized. Prerequisite: CSE 3320.

**5360. ARTIFICIAL INTELLIGENCE I (3-0).** Introduction to the methods, concepts and applications of artificial intelligence, including knowledge representation, search, theorem proving, planning, natural language processing, and study of AI programming languages. Prerequisite: CSE 2320 and 3315, or consent of instructor.

**5361. ARTIFICIAL INTELLIGENCE II (3-0).** Continuation of artificial intelligence methods and techniques, including uncertainty reasoning, machine learning, perception, and advanced topics in knowledge representation, search and planning. Emphasis on design and implementation of AI solutions. Prerequisite: CSE 5360 or consent of instructor.

**5364. ROBOTICS (2-3).** An introduction to robotics and the design and programming of autonomous robot systems. Topics include basic kinematics, dynamics, and control, as well as sensors, knowledge representation, and programming techniques. Coursework includes individual and group projects involving the building and programming of simulated and real robots. Prerequisite: CSE 2320 and CSE 3442.

**5365. COMPUTER GRAPHICS (3-0).** Input/output devices and programming techniques suitable for the visual representation of data and images. Prerequisite: CSE 1320, analytic geometry and linear algebra, or consent of instructor.

**5366. DIGITAL SIGNAL PROCESSING (3-0).** Introduction to principles and applications of digital signal processing. Topics include: analysis of signals and systems, Fourier and Z transforms, digital filter design techniques (FIR and IIR), autoregressive (AR) and autoregressive moving average (ARMA) modeling. Applications to science and engineering include: financial predictions and processing of digital music. Laboratory work includes some programming and use of high quality library routines and packages such as Mathematica, Matlab. Prerequisite: CSE 1320 and consent of Graduate Advisor.

**5367. PATTERN RECOGNITION (3-0).** Principles and various approaches of pattern recognition processes, including Bayesian classification, parametric/non-parametric classifier design, feature extraction for signal representation, and techniques for classification and clustering. Current issues in pattern recognition research will also be examined. Prerequisites: CSE 2320, MATH 3313.

**5368. NEURAL NETWORKS (3-0).** Theoretical principles of neurocomputing. Learning algorithms, information capacity, and mapping properties of feedforward and recurrent networks. Different neural network models will be implemented and their practical applications discussed. Prerequisite: CSE 1320 and calculus II, or consent of instructor.

**5370. BIOINFORMATICS (3-0).** Basic biology of genome and common laboratory techniques Overview of discrete probability theory, random variables and processes. Issues in genome mapping, sequencing and analysis: sequence alignments and alignment algorithms; genomic databases and information access; structure and features of DNA

sequences. Techniques in contemporary biotechnology, including proteomics and gene expression analysis using microarray chips. Prerequisite: CSE 5311 or consent of instructor.

**5191, 5291, 5391. INDIVIDUAL STUDY IN COMPUTER SCIENCE.** Topics dealing with special problems in Computer Science on an individual instruction basis. May be repeated for credit. Prerequisite: consent of instructor. Graded P/F/R.

**5392. TOPICS IN COMPUTER SCIENCE (3-0).** May be repeated for credit when the topics vary. Prerequisite: graduate standing and consent of instructor.

**5393. DIRECTED STUDY IN COMPUTER SCIENCE.** Topics dealing with special problems in Computer Science on an individual instruction basis. May be repeated for credit. Intended for use on thesis degree plans. Prerequisite: departmental approval of proposal submitted one month prior to beginning of semester.

**5397. MASTER'S THESIS I.** Preliminary research effort for the master's thesis, including problem definition and literature search, along with identification of resources, milestones, examining committee members, and external publication venue. Prerequisite: consent of instructor. Graded P/F.

**5398. MASTER'S THESIS II.** Completion of tasks in support of the thesis defined in Master's Thesis I, including oral defense of the written documents. Prerequisite: CSE 5397. Graded P/F/R.

**5442. EMBEDDED COMPUTER SYSTEMS (3-3).** Design of micro computer-based systems; microcomputer programming, component and system architectures, memory interfacing, parallel and serial I/O interfacing, A/D and D/A conversion, and typical applications. Prerequisite: CSE 3322 or consent of instructor.

**6306. ADVANCED TOPICS IN OPERATING SYSTEMS (3-0).** May be repeated for credit when topics change. Prerequisite: CSE 5306 or consent of instructor.

**6314. ADVANCED TOPICS IN THEORETICAL COMPUTER SCIENCE (3-0).** May be repeated for credit when topics change. Prerequisite: CSE 5314 or consent of instructor.

**6323. FORMAL METHODS IN SOFTWARE ENGINEERING (3-0).** Methods for modeling and reasoning that play a fundamental role in computer science. Topics include: advanced mathematical logic, formal proof methods, set theory, and formal specification languages and their applications to software engineering. Prerequisite: CSE 5324 or consent of instructor.

**6324. ADVANCED TOPICS IN SOFTWARE ENGINEERING (3-0).** May be repeated for credit when topics change. Prerequisite: CSE 5325 (or concurrent enrollment) and consent of instructor.

**6331. ADVANCED TOPICS IN DATABASE SYSTEMS (3-0).** May be repeated for credit when topics change. Prerequisite: CSE 5332 and consent of instructor.

**6332. TECHNIQUES FOR MULTIMEDIA DATABASES (3-0).** Overview of data types, formats and compression techniques for audio, video and image data; operating systems techniques for multimedia; video delivery techniques; indexing and retrieval techniques; content-based video modeling; multimedia data on the Web. Prerequisite: CSE 5331 or consent of instructor.

**6344. ADVANCED TOPICS IN COMMUNICATION NETWORKS (3-0).** May be repeated for credit when topics change. Prerequisite: CSE 5346 or consent of instructor.

**6345. MOBILE COMPUTING SYSTEMS (3-0).** Mobility management, Mobile IP, hand-off, routing, multicasting, and reliable communication in wireless networks. Data management, push-pull based data acquisition, issues in wireless mobile systems, resource allocation, QoS issues and multimedia transmission over wireless, WAP and Bluetooth technologies, Third Generation systems. Prerequisite: CSE 5346.

**6347. WIRELESS MOBILE NETWORKING AND COMPUTING (3-0).** Wireless architectures and networking; multiple access protocols; channel assignment and resource allocation; mobility and location management mobile data access; wireless data networking and multimedia; call admission control and QoS provisioning; performance modeling; mobile IP and wireless Internet. Prerequisite: CSE 5347 or consent of instructor.

**6350. ADVANCED TOPICS IN COMPUTER ARCHITECTURE (3-0).** May be repeated for credit when topics change. Prerequisite: CSE 5350 and consent of instructor.

**6351. TOPICS IN PARALLEL AND DISTRIBUTED COMPUTING (3-0).** May be repeated for credit when topics change. Prerequisite: CSE 5350, 5351, or consent of instructor.

**6352. FAULT-TOLERANT COMPUTING (3-0).** Topics in reliable and fault-tolerant computing. May be repeated for credit when topics change. Prerequisite: CSE 5350 and consent of instructor.

**6362. ADVANCED TOPICS IN ARTIFICIAL INTELLIGENCE (3-0).** May be repeated for credit when the topic changes. Prerequisite: CSE 5361 and consent of instructor.

**6363. MACHINE LEARNING (3-0).** A detailed investigation of current machine learning methods, including statistical, connectionist, and symbolic learning. Presents theoretical results for comparing methods and determining what is learnable. Current issues in machine learning research will also be examined. Prerequisite: CSE 5361 and consent of instructor.

**6366. DIGITAL IMAGE PROCESSING (3-0).** Digitization and coding of images, characterization and representation of digital images in spatial and frequency domains, picture restoration and enhancement, filtering of two-dimensional signals, image reconstruction. Prerequisite: CSE 5366 or consent of instructor.

**6367. COMPUTER VISION (3-0).** Advanced techniques for interpretation, analysis, and classification of digital images. Topics include methods for segmentation, feature extraction, recognition, stereo vision, 3-D modeling, and analysis of time-varying imagery. Also taught as EE 6358. Prerequisite: CSE 6366 or EE 5356 or EE 5357, and consent of instructor.

**6192, 6292, 6392. SPECIAL TOPICS IN ADVANCED COMPUTER SCIENCE.** May be repeated for credit when the topics vary. Prerequisite: graduate standing and consent of instructor.

**6197-6997. RESEARCH IN COMPUTER SCIENCE.** Individually supervised research projects. Graded P/F/R. Prerequisite: graduate standing in computer science and approval of Graduate Advisor.

**6399, 6699, 6999. DISSERTATION.** Preparation of dissertation in computer science or computer science and engineering, 6399 and 6699 graded R/F only; 6999 graded P/F/R. Prerequisite: consent of instructor.

## Objective

The course offerings provide the student with an opportunity to broaden as well as to intensify his or her knowledge in a number of areas of electrical engineering. The student, with the aid of a faculty adviser, may plan a program in any one of a number of fields of specialization within electrical engineering or from the offerings of related departments in science and engineering.

Graduate study and research are offered in the areas of:

1. VLSI and Digital Systems
2. Systems, Controls, and Robotics: Systems, Controls, Manufacturing, Discrete Event Control, Neural and Fuzzy Control, Nonlinear Modern Control, Biomedical Signal Processing and Instrumentation.
3. Electromagnetic Fields and Applications: Remote Sensing, Electromagnetic Fields, Propagation, Scattering, Radiation, and Microwave Systems.
4. Microelectronics, Nanoelectronics and Semiconductor Devices: Semiconductor Theory, Microwave Devices and Circuits, Analog Electronics.
5. Digital Signal Processing, Digital Image Processing: Vision Systems, Neural Networks, Statistical Signal Processing, Nonlinear Image Processing, Virtual Prototyping, and Virtual Environments
6. Communications: Information Transmission and Communication Systems
7. Energy Systems: Efficient Operation, Generation, Transmission, Distribution, Deregulation; Power Electronics Engineering.
8. Optical Devices and Systems: Optics Electro-optics, Diffractive Optics, Nonlinear Optics, and Lasers.

The program is designed to satisfy the needs of students pursuing master's and doctoral degrees and to provide for the student seeking to increase knowledge in areas of electrical engineering related to engineering practice. The courses offered will provide practicing engineers with advanced, up-to-date education in electrical engineering.

## Admission Criteria

The admission process considers all of the application material including official transcripts, GRE scores, letters of recommendation and the statement of purpose. No single objective factor is used to finalize the decision for admission or to deny admission. An attempt will be made to match the technical aspirations of the potential graduate students with the departmental resources in order to provide a stimulating academic environment for the students and their graduate education.

Criteria concerning (1) unconditional, (2) provisional, (3) deferred, (4) denied and (5) fellowship, are given below:

1. *Admission with Unconditional Status:* A typical applicant who is "admitted" will have met the following admission requirements.
  - The minimum undergraduate GPA requirement
    - a. For MSEE admission 3.25 (on a 4.0 scale) based on upper division coursework (junior and senior level or equivalent)
    - b. For Ph.D. admission 3.5 based on MSEE or equivalent
  - Relevance of the student's undergraduate degree (background) to the EE curriculum.

## Department of Electrical Engineering

[www-ee.uta.edu](http://www-ee.uta.edu)

### Area of Study and Degrees

Electrical Engineering

M.S., M.Engr., Ph.D.

### Master's Degree Plans

Thesis, Thesis Substitute and Non-Thesis

### Chair

Raymond Shoults

518 Nedderman Hall, 817-272-3472

### Graduate Advisor

William E. Dillon

503 Nedderman Hall, 817-272-2671

[eedept@uta.edu](mailto:eedept@uta.edu)

### Graduate Faculty

#### Professors

Alavi, Bredow, Butler, Carter,  
Celik-Butler, Devarajan, Fung,  
Kirk, Kondraske, Lee, Lewis, Manry,  
Prabhu, Rao, Shoults, Smith, Yeung

#### Associate Professors

Chiao, Davis, Dillon, Tjuatja

#### Assistant Professors

Gou, Jung, Liang, Oraintara,  
Tao, Vasilyev, Xiao

#### Senior Lecturers

Kenarangui, Svihel

#### Professors Emeritus

Cash, Jiles

- Rigor of the student's Bachelor's degree.
  - Reputation of the University/College that the student received his/her previous degrees
  - For Ph.D. applicants, the publications in scholarly conferences/journals are optional but will improve both a student's chances of securing admission and receiving financial support.
  - Three recommendation letters from individuals who can judge the probability of success of the student's graduate study.
  - GRE scores of at least the following:
    - a. Quantitative score  $\geq 720$  for M.S.  
or  
 $\geq 750$  for Ph.D.
    - b. Verbal score  $\geq 500$
    - c. Analytical Writing  $\geq 4$
  - For an International student, an additional requirement beyond those stated above:
    - TOEFL  $\geq 560$  for the paper and pencil test and 220 for the computer-based test
2. *Admission with Provisional status:* An applicant unable to supply all required official documentation prior to the admission deadline, but whose available documentation otherwise appears to meet admission requirements may be granted provisional admission.
  3. *Deferred status:* A deferred decision may be granted when a file is incomplete.
  4. *Denied Status:* An applicant that does not meet categories 1, 2 or 3 above will be denied admission.
  5. *Fellowships:* Award of a fellowship will be based on the criteria required by the sponsor agency (including the graduate school) on a competitive basis.

## Degree Requirements

### Master's Degree

Master's degree requirements are described in the general catalog section titled Requirements for the Master's Degree/Degree Plans and Hours Required. The MSEE degree options available are thesis option, thesis substitute option and non-thesis option. The courses taken for all degrees must be distributed over four of the eight areas given in the Objective section. The MSEE program of work in electrical engineering may include up to nine graduate level semester hours of supporting courses outside the UTA Electrical Engineering Department in math, science and engineering. The Graduate Advisor must approve supporting courses that are permitted on a degree plan. The courses approved outside electrical engineering may be used in lieu of one of the four distribution areas. The thesis option requires 24 semester hours plus six semester hours of thesis (EE 5698). The thesis substitute option requires 33 semester hours of which three semester hours must be in the thesis substitute project (EE 5392). The non-thesis option requires 36 semester hours. The M.Engr. emphasizes design engineering and management. This program requires 36 semester hours distributed in the same manner as the MSEE program, except that up to 12 semester hours outside the department may be included.

### Doctoral Degree

The Ph.D. is a degree with emphasis on research. Requirements for the doctoral degree are described elsewhere in the general catalog

section on Degree Offerings/Requirements. Permission to continue beyond the master's degree will be based on the grade point average and GRE scores as described above. Approval to continue in the doctoral program is given by satisfactory completion of the following procedure:

1. Earning at least a 3.5 GPA in four of the faculty-approved list of Technical Proficiency Courses taken from four different areas,
2. Obtaining the approval of a dissertation adviser, and
3. Passing the Diagnostic Examination. This exam will be over the four Technical Proficiency Courses.

The course requirements for the Diagnostic Examination should be completed during the M.S. degree or during the first 30 graduate hours required for entrance into the Ph.D. program. If the student is required to take some of the Technical Proficiency Courses in order to take the Diagnostic Exam, these hours will be in addition to the required advanced level course specified later.

This procedure must be completed within the year of coursework toward the Ph.D. A student not having attempted the Diagnostic Examination by this time will be allowed one more opportunity to take the examination during the next full semester.

The program of work is expected to include a minimum of 18 semester hours of advanced graduate level coursework beyond the master's degree and sufficient dissertation semester hours as required to complete the dissertation. These courses may include graduate level mathematics, science, or engineering relevant to the student's dissertation program, but only with approval of the Graduate Advisor.

The status of a doctoral candidate is approved for students who have passed an oral Comprehensive Examination (a comprehensive dissertation proposal) and submit a Final Program of Work. The Comprehensive Examination will be required by the time the student has completed the required coursework. If the student fails the examination, he/she would be given one more chance to pass it no later than during the following semester. Upon completion of the Comprehensive Examination, the candidate should enroll in the dissertation course (EE 6399, EE 6699, or EE 6999) continuously until defense of the dissertation. The last semester the student must be enrolled in EE 6999. This ordinarily requires approximately 30 semester hours of dissertation credit.

Candidates for graduate degrees whose native language is not English must have a minimum Test of Spoken English (TSE) score of 40. Certification for graduation may be obtained via remedial work if the minimum is not met. Students whose native language is not English who have not taken the TSE should attempt the TSE prior to the end of their second semester.

## Continuation

The Electrical Engineering Graduate Program, in fulfillment of its responsibility to graduate highly qualified engineers, has established certain policies and procedures. In addition to the requirements of the Graduate School listed elsewhere, to continue in the program each electrical engineering graduate student must maintain at least a B (3.0) GPA in all electrical engineering coursework and at least a B (3.0) GPA in all coursework for M.S. students. A student working toward a Ph.D. must maintain a 3.5 GPA in all electrical engineering coursework and at least a 3.5 GPA in all coursework.



The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Electrical Engineering (EE)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

### Fundamental Courses in Electrical Engineering

**5301. ADVANCED ENGINEERING ANALYSIS (3-0).** Analytical and numerical techniques for solving various types of engineering problems. Topics include matrix reduction by Gaussian elimination, similarity transformation, singular value decomposition, Jordan normal form, etc. Analysis techniques include Fourier series and transforms, fast Fourier transform, discrete convolution, complex analysis, least squares, and others.

**5302. RANDOM SIGNALS AND NOISE (3-0).** Probability, random variables, and stochastic processes in physical systems. Topics include probability space, discrete and continuous random variables, density and conditional density functions, functions of random variables, mean-square estimation, random signals, system response, optimum system design, and Markov processes.

**5303. ENGINEERING MANAGEMENT (3-0).** The management of the engineering function in high-technology industry with principal emphasis on the historical development of industrial management principles, decision-making, and planning.

**5304. NETWORK SYNTHESIS (3-0).** Introduction to network synthesis of circuits using lumped, linear, passive, and operational amplifiers. Topics include realizability theory, synthesis of driving point impedances and two port circuits, passive and active filters, and Hilbert Transforms.

**5305. ADVANCED ELECTRONICS (3-0).** Advanced study of solid-state devices and integrated circuits. Analysis, design and simulation of analog integrated circuits including biasing, gain stages, active loads, power amplifiers, operational amplifiers and wideband amplifiers.

**5306. ELECTROMAGNETIC THEORY (3-0).** Advanced study of electromagnetic theory, its content, methods, and applications. Topics include theorems in electromagnetic theory, cylindrical and spherical wave functions, waveguides, integral equation methods, scattering and diffraction.

**5307. LINEAR SYSTEMS ENGINEERING (3-0).** Topics include state-space description of dynamic systems, analysis and design of linear

systems, similarity transformation, state feedback, state observers, and matrix characterization of multivariable systems.

**5308. POWER SYSTEM MODELING AND ANALYSIS (3-0).** Fundamental concepts for modeling transmission lines, distribution lines, power system generators, power transformers and power system load. The method of symmetrical components is discussed. Simulation of power systems during normal and abnormal conditions are presented. The philosophy of deregulation regarding separation of power systems into generation, transmission and distribution companies is introduced.

**5309. TOPICS IN ELECTRICAL ENGINEERING (3-0).** Material may vary from semester to semester. Topics are selected from current areas of electrical engineering interest. May be repeated when topic changes.

### VLSI and Digital Systems

**5311. VLSI SIGNAL PROCESSING ARCHITECTURES (3-0).** Design and synthesis of DSP and telecommunication systems using integrated modeling, design, and verification tools. Exploration of high-level architectural transformations that can be used to design families of DSP architectures for a given signal processing algorithm. Prerequisite: EE 4334 or equivalent and EE 5350.

**5312. VLSI DESIGN AND TECHNOLOGY (3-0).** Introduction of VLSI digital circuit design methods and processing technology. Applications of various engineering design software for circuit design and layout. Design of basic CMOS digital logic circuits and general VLSI system components.

**5313. MICROPROCESSOR SYSTEMS (3-0).** Hardware/software development techniques for microprocessors and their programmable peripherals, with emphasis on multi-byte width memory design, throughput issues including DMA controller design, co-processor operation, interrupt-driven i/o, oscillators and timer peripherals, analog signal interfacing, and digital buses and interfaces. Topics include: code efficiency issues, hardware-software interactions, and design of memory systems, DMA controllers, and real-world interfacing.

**5314. EMBEDDED MICROCONTROLLER SYSTEMS (3-0).** Hardware/software development techniques for microcontroller systems with emphasis on hardware-software interactions, programming internal peripherals, and real-time control and conditioning of external devices. Other topics include: code efficiency, pin reuse, interrupt-driven processing, USART operations, I2C and SPI bus peripherals, and use of internal peripherals.

**5315. DSP MICROPROCESSORS (3-0).** Device architectures and various aspects of hardware/software design will be presented for dominant families of function-specific, application-specific and general-purpose digital signal processors (DSPs) from leading manufacturers. Special attention will be given to problems related to real-time acquisition and processing of analog data (audio, video, RF, etc.), including design principles for the state-of-the-art data conversion interfaces. Prerequisite: EE 5313 or consent of instructor.

**5317. ADVANCED DIGITAL VLSI DESIGN (3-0).** Design of digital logic gates using CMOS and BiCMOS technologies; static and dynamic circuit techniques; chip layout strategies; timing issues; adder, multiplier and memory circuits; low power design; CAD tools. A design project using the computer tools is required. Prerequisite: EE 4320 or consent of the instructor.

**5318. ANALOG CMOS IC DESIGN (3-0).** CMOS analog IC design and layout issues; CMOS current mirror and opamp design; noise analysis and modeling; comparators, sample-and-holds and voltage references; switch-capacitor circuits. Prerequisite: EE 5305.

**5319. TOPICS IN DIGITAL SYSTEMS (3-0).** Formal instruction in selected topics in digital systems and microcomputers. May be repeated when topic changes.

**6313. ADVANCED MICROPROCESSOR SYSTEMS (3-0).** Study of the advanced microprocessor architectures including 32/64-bit RISC and CISC families of microprocessors will be compared based on detailed architectural analysis of the selected devices. Topics include: address/instruction pipelines, burst cycles, memory caching and cache coherency issues, register renaming, speculative instruction execution and other performance-oriented techniques. Prerequisite: EE 5313 or consent of instructor.

**6314. ADVANCED EMBEDDED MICROCONTROLLER SYSTEMS (3-0).** Study of advanced microcontroller system designs with an emphasis on multi-tasking, real-time control of devices. Topics include: design of real-time control systems, programmable logic controller (PLC) hardware, USB peripherals and network appliances. Prerequisite: EE 5314 or consent of instructor.

**6318. ADVANCED ANALOG VLSI SYSTEMS (3-0).** Data converter design: Nyquist rate D/A and A/D converters and oversampling converters; continuous time filters; phase lock loops; low power analog circuit design techniques. Prerequisite: EE 5305.

## Systems, Controls and Robotics

**5320. CONTROL SYSTEM DESIGN (3-0).** Design, analysis, and computer simulation of digital and continuous control systems. Controller design using classical techniques and modern state-variable techniques, including linear quadratic regulator, polynomial, and observer design. Discrete systems and Z-transform theory. Use of high-level computer programs in system analysis and design will be emphasized. Prerequisite: EE 4314 or consent of instructor.

**5321. OPTIMAL CONTROL (3-0).** Design of optimal control systems. Topics include optimization under constraints, linear quadratic regulators, Ricatti equation, suboptimal control, dynamic programming, calculus of variations, and Pontryagin's minimum principle. Prerequisite: EE 5307 or consent of instructor.

**5322. INTELLIGENT CONTROL SYSTEMS (3-0).** Principles of intelligent control including adaptive, learning, and self-organizing systems. Neural networks and fuzzy logic systems for feedback control. Discrete event systems and decision-making supervisory control systems. Manufacturing workcell control. Advanced sensor processing including Kalman filtering and sensor fusion. Prerequisite: EE 5307 or consent of instructor.

**5323. NONLINEAR AND ADAPTIVE CONTROL (3-0).** Design of nonlinear and adaptive systems. Topics include phase planes, Lyapunov's theory, describing function, feedback linearization, parameter estimation, self-tuning, and model reference adaptive systems. Prerequisite: EE 5307 or consent of instructor.

**5325. ROBOTICS (3-0).** Principles of kinematics, dynamics, and control of robot manipulators and mobile robots. Analysis of dynamical equations and design of robot control systems using modern nonlinear systems techniques. Computer simulation of robotic and mobile robot systems. Path planning, workcell coordination and control. Robot languages and programming. Also listed as ME 5337. Prerequisite: EE 4314 or consent of instructor.

**5328. INSTRUMENTATION AND MEASUREMENT (3-0).** Measurement principles and design of sensor and measurement systems. Topics include computer-based measurement systems, sensor

design, signal conditioning, data acquisition, smart sensors, and mechatronics. Techniques for measuring quantities encountered in robotics and automation, manufacturing, biomedical, and other applications.

**5329. TOPICS IN SYSTEMS (3-0).** Formal instruction in selected topics in systems engineering, such as advanced controls, systems performance, graphics subsystems design, robotics, and computer vision. May be repeated when topic changes.

## Electromagnetic Fields and Applications

**5331. MICROWAVE SYSTEMS ENGINEERING (3-0).** Topics include frequency planning, design and performance analysis of transmitter and receiver circuits for communications and radar. Emphasis is on design using commercially available mixers, amplifiers, oscillators, and modulation circuits. Analysis includes receiver noise figure, distortion and path loss effects.

**5332. ANTENNA SYSTEM ANALYSIS (3-0).** Fundamental study of antennas and antenna design techniques. Topics include numerical analysis of wire antennas; aperture antennas; geometrical theory of diffraction; horns and reflector antennas; and antenna synthesis and measurements. Prerequisite: EE 5306 or consent of instructor.

**5333. WIRELESS AND CELLULAR PROPAGATION (3-0).** Fundamentals of VHF, UHF, and microwave propagation. Propagation over irregular terrain. Propagation in built-up areas. Propagation modeling and prediction tools. Multipath phenomena. Signal statistics. Prerequisite: EE 5302 and 5306 or consent of instructor.

**5339. TOPICS IN ELECTROMAGNETICS (3-0).** Formal instruction in selected topics in electromagnetics. May be repeated when topic changes.

## High Frequency Microelectronic Devices and Circuits

**5340. SEMICONDUCTOR DEVICE THEORY (3-0).** Quantum mechanics applicable to semiconductor theory. Energy band theory, density of states and effective mass theory. Intrinsic and extrinsic semiconductors, equilibrium statistics for electrons and holes. Transport, generation and recombination of excess carriers. Device equations and physics. Theory and performance of p-n and Schottky diodes, bipolar and MOS transistors.

**5341. ELECTRONIC MATERIALS: FUNDAMENTALS AND APPLICATIONS (3-0).** Fundamental theory required for the study of electronic materials: waves and particles, quantum mechanics, crystal structures, chemical bonds, and band theory. Materials and properties considered will be metals, semiconductors, and dielectrics including effective mass, doping, and carrier statistics, and electronic, dielectric, magnetic, and optical properties of materials as applied to integrated circuits, wireless communication, optoelectronics, optical communication, and data storage. Prerequisite: consent of instructor.

**5342. SEMICONDUCTOR DEVICE MODELING AND CHARACTERIZATION (2-3).** Device models and characterization procedures for the pn junction and Schottky diodes, the BJT, JFET, MOSFET, HBT, and optical sources and detectors. SPICE derived and higher level circuit simulator models will be presented. Prerequisite: EE 4329, 5340 or 5341.

**5343. SILICON INTEGRATED CIRCUIT FABRICATION TECHNOLOGY (2-3).** Basic integrated circuit fabrication processes:

crystal growth (thin film and bulk), thermal oxidation, dopant diffusion/implantation, thin film deposition/etching, and lithography. Introduction to process simulators, such as SUPREM. Fabrication and characterization of resistors, MOS capacitors, junction diodes and MOSFET devices. Prerequisite: EE 4329, 5340 or 5341.

**5344. INTRODUCTION TO MICROELECTROMECHANICAL SYSTEMS (MEMS) AND DEVICES (3-0).** Develops the basics for microelectromechanical devices and systems including microactuators, microsensors, and micromotors, principles of operation, different micromachining techniques, and thin-film technologies as they apply to MEMS.

**5345. SEMICONDUCTOR DEVICE AND PROCESS SIMULATION (2-3).** Analytical simulation theory and applications. Device simulation of pn junctions, bipolar junction transistors and MOS devices. Process simulation of oxidation, ion implantation and diffusion.

**5346. MICROWAVE DEVICES (3-0).** Device physics and applications of microwave semiconductor devices and vacuum tubes. Topics include operation, modeling and characterization of MESFETs and HEMTs, microwave diodes, and microwave vacuum tubes. Prerequisite: EE 4329, 5340, 5341 or consent of instructor.

**5347. MICROWAVE CIRCUITS (3-0).** Theory of microwave circuit design; techniques include use of Kuroda identities, Richard's transformation, and ABCD parameters; topics include design of couplers, transformers, filters, and resonators in coaxial lines, strip lines, and microstrip. Prerequisite: EE 4347, 5348/4339 or consent of instructor.

**5348. RADIO-FREQUENCY CIRCUIT DESIGN (3-0).** Design of lumped-element radio-frequency circuits operating at frequencies to 2 GHz. Impedance-matching, s-parameter design of amplifiers and oscillators, RF mixers. Other topics include noise theory (thermal and phase noise) and phase-locked loops. Prerequisite: EE 5305 or equivalent.

**5349. TOPICS IN INTEGRATED CIRCUIT TECHNOLOGY (3-0).** Formal instruction in selected topics in integrated circuit technology. May be repeated when topic changes.

**6342. ADVANCED QUANTUM DEVICES (3-0).** Advanced concepts in quantum theory of semiconductors. Epitaxial growth and characterization of heterostructures, quantum wells, and superlattices including strained layers; electronic and optical properties of these structures; electronic and optoelectronic devices based on quantum wells and superlattices. Prerequisite: EE 5340, 5341 or consent of instructor.

**6343. QUANTUM WELL LASERS (3-0).** Introduction to semiconductor heterostructures and quantum wells. Quantum theory of optical processes and laser operation. Threshold, spectral, and dynamical behavior. Modern laser structures and technologies, including strained-layer and surface emitting lasers. Prerequisite: EE 5340, 5341 or consent of instructor.

**6344. NANOSYSTEMS AND QUANTUM ELECTRONIC DEVICES (3-0).** Design, analysis, and techniques for conceptualizing and fabricating nanoscale systems. Role of quantum confinement and mesoscopic behavior, phase coherence, quantum transport, single electron devices, semiconductor heterostructures, self-assembly and molecular electronic schemes, lithographic methods, atomic epitaxy, and surface analysis techniques. Prerequisite: EE 5340, 5341 or consent of instructor.

## Signal Processing

**5350. DIGITAL SIGNAL PROCESSING (3-0).** Time and frequency domain analyses of linear time invariant systems. Stability analyses of causal and non-causal systems using the Z-transform. FIR digital filter design. Design of frequency selective IIR digital filters using frequency transformations and the bilinear transform. Design of infinite and finite impulse response filters.

**5352. STATISTICAL SIGNAL PROCESSING (3-0).** Estimation of autocorrelations and cross-correlations; estimation of power spectral densities using the DFT; AR modeling and Wiener filter design; Toeplitz recursion; maximum likelihood estimation and minimum mean square estimation. Prerequisites: EE 5350 and 5302.

**5353. NEURAL NETWORKS (3-0).** Introduction to feedforward and local neural networks. Training algorithms including back-propagation. Metrics for evaluation of neural network and conventional network performance. Applications in classification, estimation and forecasting. Prerequisite: EE 5350 or concurrent registration.

**5354. WAVELETS AND FILTER BANKS (3-0).** Fundamentals of signal decomposition, discrete multirate systems and polyphase structures. Time-frequency analysis and multiresolution signal representation. Two-channel filter banks, dyadic wavelets, and scaling and wavelet functions. M-channel filter banks and their lattice structures. Applications in signal denoising, compression and communications. Prerequisite: EE 5350 or consent of instructor.

**5355. DISCRETE TRANSFORMS AND THEIR APPLICATIONS (3-0).** Principles and properties of discrete transforms such as discrete Fourier, discrete cosine, Walsh-Hadamard, slant, Haar, discrete sine, discrete Hartley, LOT and Wavelet transforms, and their applications in signal and image processing.

**5356. DIGITAL IMAGE PROCESSING (3-0).** Digital image processing as applied to image sampling and quantization, image perception, image enhancement, image restoration, image reconstruction from projections, and filtering and image coding. Prerequisite: EE 5350.

**5357. STATISTICAL PATTERN RECOGNITION (3-0).** Elements of statistical pattern recognition systems, including: image pre-processing using order statistic and morphological filters, deformation-invariant feature sets and approximations to Bayes classifiers. Shape recognition using nonlinear classifiers. Prerequisites: EE 5350 and 5302 or 5352.

**5358. DIGITAL PHOTOGRAMMETRY (3-0).** Topics include image formation and sensing, overview of image processing, close and long range photogrammetric methods, sensor models and applications to target recognition, computer vision, visual systems, hardware-in-the-loop simulation, remote sensing, medical imaging, virtual reality and CAD.

**5359. TOPICS IN SIGNAL PROCESSING (3-0).** Formal instruction in selected topics in signal processing. May be repeated when topic changes.

**6356. IMAGE AND VIDEO CODING (3-0).** Fundamentals, principles, concepts, and techniques of data (image/video/audio) compression such as Huffman coding, arithmetic coding, Lempel-Ziv coding, facsimile coding, scalar and vector quantization, DPCM, PCM, subband coding, transform coding, hybrid coding and their applications. Prerequisite: EE 5350.

**6358. COMPUTER VISION (3-0).** Advanced techniques for interpretation, analysis, and classification of digital images. Topics include methods for: segmentation, feature extraction, recognition, stereo vision, 3-D modeling, and analysis of time varying imagery. Prerequisite: EE 5356 or 5357.

## Communications

### 5360. DATA COMMUNICATIONS ENGINEERING (3-0).

Principles underlying communication network design, including physical layer, MAC layer modeling and engineering, and data link layer. Queuing theory. Internet structure, Internet protocol models and engineering. Physical layer description will include modulation, FEC, cyclic and Trellis coding. MAC layer modeling will include CSMA/CD, ALOHAS, and other splitting algorithms. Prerequisites: EE 5302 and 5361.

### 5361. FUNDAMENTALS OF TELECOMMUNICATION SYSTEMS (3-0).

Analysis of analog and digital communication techniques including amplitude modulation, frequency modulation, and pulse code modulation. Time-domain and frequency domain multiplexing. Analog and digital noise analysis, information theory, design of communication systems.

### 5362. DIGITAL COMMUNICATIONS (3-0).

Fundamental principles underlying the transmission of digital data over noisy channels. Basics of source coding techniques including entropy coding, Lempel-Ziv. Channel capacity. Spectral analysis of digital modulation techniques. Optimum receiver design and error probability performance of commonly used modulation schemes. Applications to lightwave and wireless systems. Prerequisites: EE 5361 and 5302 or consent of instructor.

### 5363. TELECOMMUNICATION SYSTEMS (3-0).

Basics of telecommunications and telephone networks. Switching and transmission systems. Circuit and packet switching. Call processing. Common channel signaling systems. Queuing theory and applications. OSI-layered reference architecture. ISDN. Prerequisite: EE 5361 or consent of instructor.

### 5364. INFORMATION THEORY AND CODING (3-0).

Transmission of information over noisy channels, Shannon's coding theorems, techniques of coding and decoding for reliable transmission over noise channels, error-detecting, and error-correcting codes. Prerequisite: EE 5302.

### 5365. FIBER OPTIC TRANSMISSION SYSTEMS (3-0).

Propagation in optical fibers, characteristics and manufacture of fibers, semiconductor lightwave sources and detectors, optical transmitters and receivers, lightwave transmission systems for wide area and local area networks. Prerequisites: EE 5361 and 5306 or consent of instructor.

### 5366. COMMUNICATION SATELLITE SYSTEMS (3-0).

Introduction of space communications, satellite orbits and their effect on communication system design. Atmospheric propagation effects. Communication link analysis, modulation, multiplexing, multiple access, encoding and forward error correction in satellite links. Design of communication satellites, earth station and their principal subsystems. Prerequisite: EE 5361 or consent of instructor.

### 5367. WIRELESS SYSTEMS AND PROPAGATION MODELING (3-0).

Fundamental principles and techniques of electromagnetic wave propagation as it applies to current wireless and cellular systems, development of models of propagation and their application in wireless system design, characteristics of microwave devices used in wireless systems, system and traffic design techniques used in wireless systems. Prerequisites: EE 5302 and 5361.

### 5368. WIRELESS COMMUNICATION SYSTEMS (3-0).

Fundamental principles of radio system design and propagation. Basics of cellular systems, environment, propagation models, traffic models

and spectral capacity. Multiple-access techniques including FDMA, TDMA, CDMA. Analog and digital modulation techniques used in wireless communication and problems with RF interference. Prerequisites: EE 5302 and 5361.

**5369. TOPICS IN COMMUNICATIONS (3-0).** Formal instruction in selected topics in communications. May be repeated when topic changes.

**6362. ADVANCED DIGITAL COMMUNICATIONS (3-0).** Digital communication systems design with intersymbol interference. Partial response signaling. Adaptive equalization. Viterbi decoding. Digital signaling on fading multi-path channels and wireless channels. Applications of error detecting and correction coding. Spread spectrum systems. Prerequisites: EE 5302 and 5362.

**6363. SPREAD SPECTRUM COMMUNICATION (3-0).** Direct-sequence spread spectrum systems utilizing pseudonoise (PN) generators. PN sequences and their properties. Maximal length codes, Gold codes. Code acquisition techniques. Phase-locked loops and their applications in carrier tracking and code tracking. Performance of spread spectrum systems in jamming environments. Prerequisite: EE 5362.

**6364. ADVANCED DATA NETWORKS (3-0).** Network performance analysis, link and upper layer. Internet and ATM protocols, Internet routing and traffic management, ATM switch design and ATM traffic management. Prerequisites: EE 5302 and 5360.

**6365. ADVANCED FIBER OPTICS SYSTEMS (3-0).** Laser modulation, design of high speed optical transmitters and receivers. Coherent detection systems, fiber and semiconductor optical amplifiers. Photonic switching, future technologies. Prerequisite: EE 5365.

**6367. ADVANCED WIRELESS COMMUNICATIONS (3-0).** Performance analysis of cellular systems with multipath propagation, diversity, equalization, smart antennas. Interference compensation and signal separation in multiuser systems. Micro- and pico-cell design. Allocation of channels, hard and soft handoffs. Data transmission on mobile networks. Review of selected current and proposed systems. Prerequisite: EE 5368.

**6368. SIMULATION OF COMMUNICATION SYSTEMS (3-0).** Simulation methods of analysis of communications systems using C programming language and other languages. Analysis involving atmospheric point-to-point radio and cellular channels and fiber optic systems and their elements. Prerequisites: EE 5362 and 5368/5365, C and UNIX.

## Energy Systems

**5371. POWER SYSTEM PLANNING, OPERATION, AND CONTROL IN A DEREGULATED ENVIRONMENT (3-0).** Current market structure and practices are discussed. The issues of system planning, operation, and control in a deregulated environment are addressed. Prerequisite: EE 5308 or permission of instructor.

**5372. CONGESTION MANAGEMENT (3-0).** Phenomena of congestion and transmission pricing are presented. Thermal related congestion, such as power flow, and stability related congestion, such as voltage stability, transient stability, and dynamic stability, are covered. The effects of reactive power are discussed. Reliability and security issues of power transmission systems are presented. Congestion management and congestion relief measures are discussed. Prerequisite: EE 5308 or permission of instructor.

**5373. UNBUNDLING SERVICES OF A DEREGULATED POWER SYSTEM (3-0).** The fundamental operating functions of a deregulated

power system are presented. Unbundling of these functions and cost allocations are discussed. Topics of ancillary services, power marketing, price forecasting, and load forecasting are covered. Prerequisite: EE 5308 or permission of instructor.

**5374. POWER SYSTEM PROTECTIVE RELAYING (2-3).** Fundamental understanding of symmetrical components, applications of symmetrical components in system protection, philosophy of power system protection, various protective relay systems, and the special considerations in applying the microprocessor based relays are covered. Experiments utilizing the Power System Simulation Laboratory are required.

**5375. POWER SYSTEM DISTRIBUTION (3-0).** The basic functions of a Distribution Company are presented. Load representation, distribution load flow and the philosophy of simulation for a distribution system are discussed in detail.

**5376. POWER SYSTEM RELIABILITY IN PLANNING AND OPERATION (3-0).** Loss of Load indices, Loss of Energy indices, Frequency and Duration methods, Interconnected Reliability methods, and Composite Generation and Transmission Reliability methods will be covered.

**5377. PROGRAMMABLE LOGIC CONTROLLERS IN INDUSTRIAL AUTOMATION (3-0).** The application of Programmable Logic Controllers (PLC) in industrial automation and energy systems monitoring will be covered. Transducers, Supervisory Control and Data Acquisition (SCADA) systems, and Distributed Control Systems (DCS) will be discussed. Material covered is also applicable to various mechanical and civil engineering fields, thus enrollment of graduate engineering students from other disciplines is welcome. Experiments utilizing the Power System Simulation Laboratory are required.

**5378. POWER QUALITY (2-3).** Principles of harmonics and filtering, source of voltage surges and surge protection, causes of voltage sags, flickers, and interruptions, and voltage supporting devices, and utility and end-user strategies for improving power quality are covered.

**5379. TOPICS IN POWER SYSTEM ENGINEERING (3-0).** Formal instruction in selected topics in power system engineering. May be repeated when topic changes.

**6372. HIGH VOLTAGE ENGINEERING (3-0).** Introduction to design, measurement and testing methods for high voltage systems. A study of electrical insulation materials and their properties, partial discharges and voltage breakdowns, electric field plotting methods, generation of high voltage test pulses, and high voltage measurement techniques.

**6375. POWER ELECTRONICS ENGINEERING (3-0).** Switched mode DC-DC converters, controlled rectifiers, commutated and resonant inverters. Also, performance evaluation of specific applications by means of state space analysis will be discussed. Prerequisite: consent of instructor.

## Optical Devices and Systems

**5384. OPTOELECTRONIC DEVICES FOR COMMUNICATION (3-0).** Electronic and optical processes in semiconductors. Light emitting diodes. Laser diodes: structures, properties and operating principles. Photodetectors and solar cells. Noise and the photoreceiver. Optoelectronic modulators and switching devices. Systems needs and new device challenges.

**5385. CRYSTAL OPTICS (3-0).** Light propagation in various birefringent (anisotropic) optical media with particular emphasis on electro-optic, photorefractive, and acousto-optic temporal and spatial modulation. The design, analysis, and applications of birefringent and electro-optic devices for communications and signal processing. Prerequisite: EE 5306 or consent of instructor.

**5386. INTEGRATED OPTICS (3-0).** Theory and techniques of integrated optics including optical waveguiding, coupling, modulation, grating diffraction, detection and integrated systems. Prerequisite: EE 5306 or equivalent or consent of instructor.

**5387. FOURIER OPTICS AND HOLOGRAPHY (3-0).** Theory of Fourier optics and holography including scalar diffraction theory, Fresnel and Fraunhofer diffraction, Fourier transforming properties of lenses, optical imaging systems, spatial filtering, and the theory and applications of holography. Prerequisite: EE 5306 or consent of instructor.

**5388. LASERS (3-0).** Propagation of optical rays and waves, Gaussian laser beams, laser resonators, atomic systems, lasing and population inversion, laser amplifiers, practical gas and solid-state lasers including continuous-wave and pulsed lasers, mode locking, Q-switching, frequency doubling, tunable lasers, semiconductor lasers, vertical-cavity lasers and applications of lasers. Prerequisite: EE 5306 or consent of instructor.

**5389. TOPICS IN OPTICS (3-0).** Formal instruction in selected topics in optics. May be repeated when topic changes.

## Directed Studies in Electrical Engineering

**5190. ELECTRICAL ENGINEERING GRADUATE SEMINAR (1-0).** Topics vary from semester to semester. May be repeated for credit. Prerequisite: graduate standing or consent of the department. Graded P/F.

**5191, 5391. ADVANCED STUDY IN ELECTRICAL ENGINEERING.** Individual research projects in electrical engineering. Prior approval of the EE Graduate Advisor is required for enrollment. A written report is required. Graded P/F/R.

**5392. PROJECT IN ELECTRICAL ENGINEERING.** Individual research projects performed for fulfilling the requirements of the thesis substitute option. Prior approval of the EE graduate advisor is required for enrollment. A written and oral report is required. Graded P/F/R.

**5398, 5698. THESIS.** 5398 graded R/F only; 5698 graded P/F/R. Prerequisite: graduate standing in electrical engineering.

**6397, 6697, 6997. RESEARCH IN ELECTRICAL ENGINEERING.** Individually approved research projects leading to a doctoral dissertation in the area of electrical engineering. Graded P/F/R.

**6399, 6699, 6999. DISSERTATION.** 6399 and 6699 graded R/F only; 6999 graded P/F/R.

# Department of Industrial and Manufacturing Systems Engineering

<http://ie.uta.edu>

Area of Study and Degrees  
Industrial Engineering  
M.S., M.Engr., Ph.D.

Master's Degree Plans  
Thesis, Thesis Substitute and Non-Thesis

## Chair

D.H. Liles  
420 Woolf Hall, 817-272-3092

## Graduate Advisor

H.W. Corley  
420 Woolf Hall, 817-272-3092

## Graduate Faculty Professors

Corley, Liles, Priest

## Associate Professors

Chen, Huff, Imrhan, Rogers

## Assistant Professor

Rosenberger

## Senior Lecturer

Boardman

## Objective

The graduate program in industrial engineering is designed to provide the student with fundamental knowledge in the various areas of industrial engineering and with the opportunity to specialize in a particular area. A student pursuing a master's or doctoral degree may specialize in any area of industrial engineering such as General Industrial Engineering, Operations Research and Applied Statistics, Manufacturing Systems, Logistics, Enterprise Systems, and Enterprise Management.

The Department also participates in a college-wide Manufacturing Certificate program. In addition, the Master's of Logistics Program and the Master's of Engineering Management Program are offered in partnership with the College of Business Administration. The Logistics and Engineering Management Programs, as well as the certificate programs, are discussed elsewhere in this catalog.

## Admission Criteria

Applicants for the master's degree who hold a baccalaureate degree in engineering must meet the general requirements described below. Applicants not meeting all criteria may be admitted on provisional or probationary basis.

For applicants with no prior training in engineering, the same minimum criteria will apply. In addition, their records will be reviewed in relation to the intended program of study, and specific remedial work may be required.

The acceptance of applicants who have already received a master's degree in engineering will be based on the above-mentioned minimum criteria and results of graduate work.

## Unconditional Admission Criteria

Unconditional Admission into the M.S. and Ph.D. programs in Industrial Engineering is granted if all of the following conditions are met.

- A GPA of at least 3.0 in the last 60 hours of undergraduate coursework or prior graduate work
- A minimum score of 550 on the GRE Quantitative section and 350 on the GRE Verbal section
- A minimum score of 3 on the GRE analytical writing section for GRE's taken after October 2002
- A minimum score of 500 on the handwritten TOEFL (213 on the computer-based version) if English is not the applicant's native language
- Adequate preparation in mathematics, science, and industrial engineering

## Probationary Admission Criteria

Prospective students not meeting the conditions for unconditional admission may be granted probationary admission if their GPA is 2.6 or greater. Students granted probationary admission must maintain a GPA of at least 3.0 for the first 9 hours completed at UTA. Other conditions, such as deficiency courses, may be specified by the Graduate Advisor.

## Deferral

The admission decision is deferred if insufficient information is available.

## Denial

Prospective students with a GPA below 2.6 may be denied admission at the discretion of the Graduate Advisor. The Graduate Advisor may grant probationary admission if other factors suggest a potential for success in the graduate program.

## Continuation

The Industrial Engineering Graduate Program, in fulfillment of its responsibility to graduate highly qualified professional engineers, has established certain policies and procedures. In addition to requirements of the Graduate School listed elsewhere, to continue in the program each industrial engineering graduate student must:

1. Maintain at least a B (3.0) overall GPA in all coursework, and
2. Demonstrate suitability for professional engineering practice.

At such time as questions are raised by industrial engineering graduate faculty regarding either of the above, the student will be notified and will be provided the opportunity to respond to the Committee on Graduate Studies in Industrial Engineering. The Committee on Graduate Studies will review the student's performance and make a recommendation concerning the student's eligibility to continue in the program. Appeal of a decision on continuation may be made through normal procedures outlined in the section of this catalog entitled "Grievances Other than Grades."

## Degree Requirements

Students with degrees in other engineering disciplines may qualify for graduate study in industrial engineering after the completion of prescribed deficiency courses. Entering graduate students who are not proficient in engineering economy, probability and statistics, operations research, or industrial engineering design and analysis may be required to take deficiency courses to provide an appropriate background for graduate study in industrial engineering. For applicants with no prior training in engineering, the same deficiency courses will apply. In addition, courses in mathematics, physics, computer science, and basic engineering may be required.

Each graduate student will be required to take six courses as part of an industrial engineering core curriculum. The rest of the student's program will be elective, subject to the approval of the student's supervisory committee. The core curriculum is as follows:

1. Three hours of coursework in probability and statistics approved by the Graduate Advisor.
2. Three hours of coursework in operations research approved by the Graduate Advisor.
3. Three hours of coursework in engineering economy approved by the Graduate Advisor.
4. Nine hours of industrial engineering design approved by the Graduate Advisor.

A final examination covering the coursework is required for each master's candidate. In the option involving a thesis, this final examination will be oral and will also cover the thesis. The final examination involved in the other two options will be written and/or oral.

## Master of Science

The Master of Science Degree is a research-oriented program which consists of a thesis option, thesis-substitute option, and a non-thesis option. M.S. degree requirements are given under the catalog section entitled "Advanced Degrees and Requirements."

## Master of Engineering

The Master of Engineering Degree is an engineering practice-oriented program. The degree is a 36 credit-hour program in which a maximum of six credit hours may be earned by an acceptable design project report, internship, or additional coursework. Applicants for this degree must have a baccalaureate degree in an engineering discipline. M.E. degree requirements are given under the catalog section entitled "Advanced Degrees and Requirements."

## Doctor of Philosophy

The Ph.D. degree should normally require four years of full-time study or less after completion of the BS degree. A student's program will consist of coursework, independent study, and a dissertation in fields pertinent to the student's areas of interest. The program for each student will be planned by the student and a committee of faculty members. There is no foreign language requirement for the Ph.D. degree.

Students with undergraduate degrees in fields other than engineering will be required to take the necessary courses to establish a background in science, mathematics, and engineering. Ph.D. requirements are listed in the catalog section entitled "Advanced Degrees and Requirements."

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Industrial Engineering (IE)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5300. TOPICS IN INDUSTRIAL ENGINEERING (3-0).** A study of selected topics in industrial engineering. May be repeated when topics vary. Prerequisite: consent of instructor and Graduate Advisor.

**5301. ADVANCED OPERATIONS RESEARCH (3-0).** A survey of quantitative methods to develop modeling and decision-making skills. Topics include z-transforms and difference equations, Markov Chains, decision analysis techniques, goal programming, game theory, queuing theory and nonlinear programming. Prerequisites: IE 3301 and 3315 or equivalent.

**5303. QUALITY SYSTEMS (3-0).** Principles and practices of industrial quality control. Topics include the Deming philosophy,

process improvements, statistical process control, process capability analysis and product acceptance. Prerequisite: IE 3301 or equivalent.

**5304. ADVANCED ENGINEERING ECONOMY (3-0).** Analysis of capital investments in engineering and technical projects. Topics include decision analysis methods, cash flows, revenue requirements, activity-based analysis, multi-attribute decisions, probabilistic analysis and sensitivity/risk analysis. Prerequisite: graduate standing.

**5305. LINEAR PROGRAMMING (3-0).** Theory and applications of linear programming including the simplex method, computational complexity, column generation and integer programming. Prerequisite: graduate standing.

**5306. DYNAMIC OPTIMIZATION (3-0).** Dynamic optimization methods including dynamic programming, the calculus of variations, and optimal control theory. Emphasis is on the modeling and solution of practical problems using these techniques. Prerequisites: IE 3301 and 3315, or equivalent.

**5307. QUEUEING THEORY (3-0).** The fundamentals of queueing theory including Markovian birth-death models, networks of queues, and general arrival and service distributions. Prerequisite: IE 3301 or equivalent.

**5309. STOCHASTIC PROCESSES (3-0).** The study of probabilistic model building including the fundamentals of both discrete and continuous Markov chains, queueing theory and renewal theory. Prerequisite: IE 3301 or equivalent.

**5310. PRODUCTION SYSTEMS DESIGN (3-0).** Methods for the design and analysis of manufacturing and logistics systems. Emphasis is placed on reducing cycle time, increasing throughput, lowering variation, and improving both quality and customer responsiveness through modeling techniques. Prerequisites: IE 5301 and 5329 or equivalent.

**5311. DECISION ANALYSIS (3-0).** A survey of methods for making optimal decisions. Topics include decision models, formal logic, fuzzy controls, statistical decision theory, game theory, multiobjective decisions, stochastic programming, information theory and qualitative aspects of the decisions. Prerequisite: IE 5301 or concurrent.

**5312. PLANNING AND CONTROL OF ENTERPRISE SYSTEMS (3-0).** A continuation of IE 5329 covering enterprise resource planning systems (ERP) and other advanced production control techniques. Computer modeling is emphasized. Prerequisite: IE 5329.

**5313. RELIABILITY AND ADVANCED QUALITY CONTROL TOPICS (3-0).** Includes advanced quantitative topics in reliability design and quality control. Management of reliability and quality control functions are also included. Prerequisite: IE 4308 or 5303.

**5314. SAFETY ENGINEERING (3-0).** Methods to identify, measure, analyze, and evaluate safety hazards in the workplace. Scientific and managerial methods to prevent or control safety hazards. Prerequisite: graduate standing.

**5318. ADVANCED ENGINEERING STATISTICS (3-0).** An in-depth study of one predictor variable followed by the matrix approach to multiple linear regression. Topics include estimation, prediction, analysis of variance, residual analysis, transformations, multicollinearity, model selection, weighted least squares, ridge regression, robust regression and logistic regression. Prerequisite: IE 3301 or equivalent.

**5319. ADVANCED STATISTICAL PROCESS CONTROL AND TIME SERIES ANALYSIS (3-0).** Design of control schemes for statistical monitoring and control of modern manufacturing systems. Topics include effect of autocorrelation on SPC charts, time series approaches to controlling autocorrelated data, optimal controllers and recursive estimation. Prerequisite: IE 5303 or equivalent.

**5320. ENTERPRISE ENGINEERING METHODS (3-0).** A survey of enterprise engineering methods. Topics include system development

methodology, discussion of enterprise architectures, activity modeling, business modeling, activity-based performance analysis, simulation, and process improvement. Prerequisite: IE 5303.

**5321. ENTERPRISE ANALYSIS AND DESIGN (3-0).** An in-depth study of techniques useful for the analysis and design of the manufacturing enterprise. This course presents an advanced process description technique that is used, with simulation and activity based costing, to facilitate analysis and design. Prerequisites: IE 5320 and 5322 or concurrent.

**5322. SIMULATION AND OPTIMIZATION (3-0).** An in-depth study of discrete event simulation theory and practice. Optimization and search techniques used in conjunction with simulation experiments are introduced. A commercial simulation software application is used. Prerequisite: IE 5318 or concurrent.

**5326. INDUSTRIAL BIOMECHANICS (3-0).** The development and application of biomechanical models of physical work tasks, especially manual materials handling and hard-arm work activities. Prerequisite: IE 4344, 5338 or consent of instructor.

**5329. PRODUCTION AND INVENTORY CONTROL SYSTEMS (3-0).** The fundamentals of production and inventory control systems. The economic impacts of fluctuating demand, supply availability and production rates are examined. Prerequisite: graduate standing.

**5330. AUTOMATION AND ADVANCED MANUFACTURING (2-3).** The design of automated and advanced production processes for manufacturing. Topics include numerical control, robotics, group technology, just-in-time, automated inspection and flexible manufacturing systems. Prerequisite: graduate standing.

**5331. INDUSTRIAL ERGONOMICS (3-0).** The analysis and design of physical work, workplace, and hand tools using ergonomic principles for enhancing performance, health, and safety. Work refers mainly to whole body and hand-arm activities, while workplace refers to industrial and computerized office environments. Applications focus on people's anthropometric, musculoskeletal and psychological characteristics. Prerequisite: IE 4344, 5338 or consent of instructor.

**5332. NONLINEAR PROGRAMMING (3-0).** Methods for nonlinear optimization including classical theory; gradient methods; sequential unconstrained methods; convex programming; genetic algorithms; simulated annealing; and separable, quadratic, and geometric programming. Prerequisite: graduate standing.

**5333. LOGISTICS TRANSPORTATION SYSTEMS DESIGN (3-0).** The design and analysis of domestic and international transportation systems of people, processes, and technology. Topics include the role of transportation in the extended enterprise, transportation modeling and optimization techniques, value-added supply chain issues, and financial performance measures. Prerequisites: IE 3301, 5301 or concurrent, and 5329 or concurrent, or equivalent.

**5334. LOGISTICS DISTRIBUTION SYSTEMS DESIGN (3-0).** The design and analysis of distribution systems of people, processes and technology. The focus is on distribution, warehousing and material handling. Topics include the role of the warehouse in the extended enterprise, warehouse planning, process design, layout, equipment selection, workforce and workplace issues, and financial performance measures. Prerequisites: IE 3301, 5301 or concurrent, and 5329 or concurrent, or equivalent.

**5335. ADVANCED OCCUPATIONAL ENVIRONMENTAL HYGIENE ENGINEERING (3-0).** Interaction of workers with physical environmental agents such as heat, cold, noise, vibration, illumination, radiation, and gravity. The design of work and the workplace to control environmental stresses, and their effects on workers' performance, health and safety. Prerequisite: graduate standing.



**5338. HUMAN ENGINEERING (3-0).** Human structural, physiological, psychological, and cognitive capacities and limitations in the workplace, and their effects on the design of work systems to enhance productivity, and maintain health and safety. Prerequisite: IE 3301 or equivalent, or consent of instructor.

**5339. PRODUCT DESIGN, DEVELOPMENT, PRODUCIBILITY, AND RELIABILITY DESIGN (3-0).** This course covers product development and engineering design process with a focus on collaborative design. Software, manufacturing, reliability, testing, logistical and product support considerations are emphasized. Prerequisite: graduate standing.

**5342. METRICS AND MEASUREMENT (2-3).** Work measurement, methods improvements, and performance measurement. A survey of enterprise and management measurement systems is presented. Prerequisite: IE 3343 or equivalent.

**5345. MANAGEMENT OF KNOWLEDGE AND TECHNOLOGY (3-0).** Review of contemporary issues in knowledge management, databases, decision support systems, and intelligent systems. Topics include knowledge acquisition, intelligent database design, decision support systems, data mining, knowledge transfer, and collaborative development. Prerequisite: graduate standing.

**5346. TECHNOLOGY DEVELOPMENT AND DEPLOYMENT (3-0).** Review of management issues in developing and implementing new technologies and methodologies into an organization. Topics include technology forecasting, management of technology based projects, technological competitiveness, technology alliances, and collaboration. Prerequisite: graduate standing.

**5350. GRADUATE DESIGN CAPSTONE (3-0).** Practicum in Industrial Engineering techniques consisting of professional level experience in a relevant company, agency, or institution. This technical experience is directed by a supervising professor and requires the writing of a professional report. Prerequisite: 24 hours of graduate work in Industrial Engineering.

**5351. INTRODUCTION TO SYSTEMS ENGINEERING AND ANALYSIS (3-0).** A survey of the basic methods of systems engineering analysis. Topics include general systems theory, probability and statistics, operations research and an overview of the systems engineering process. Prerequisite: graduate standing.

**5352. SYSTEMS ENGINEERING I (3-0).** A study of systems engineering topics including technical planning, risk management, configuration management and program management. Prerequisite: IE 5351.

**5353. SYSTEMS ENGINEERING II (3-0).** A continuation of IE 5352. Topics include requirements analysis, systems definition, alternatives analysis and systems verification. Case studies are presented. Prerequisite: IE 5352.

**5354. SYSTEMS ENGINEERING III (3-0).** A continuation of IE 5353. Topics include education and training, organization, product technology and other relevant tools for the practicing systems engineer. Case studies are presented, and a comprehensive student project is required. Prerequisite: IE 5353.

**5191, 5291, 5391. ADVANCED STUDIES IN INDUSTRIAL ENGINEERING.** Individually approved research projects and reading courses in industrial engineering. Such individual studies will be graded A, B, C, D, F or X. Subject to the approval of the Graduate Advisor, IE 5191, 5291 and 5391 may be repeated as the topics change. In addition, work on a thesis substitute will be performed under IE 5391. In this case, IE 5391 is graded P/F/R. Prerequisite: written approval of both the supervising faculty member and Graduate Advisor.

**5398, 5698. THESIS.** IE 5398 is graded R/F only; IE 5698 is graded P/F/R. Prerequisite: approval of the student's supervisory committee and the Graduate Advisor.

**6197-6997. RESEARCH IN INDUSTRIAL ENGINEERING.** Supervised research projects directed toward the dissertation. Graded P/F/R. Prerequisites: approval of the student's dissertation advisor and the Graduation Advisor.

**6301. ENTERPRISE ARCHITECTURES AND FRAMEWORKS (3-0).** A survey of enterprise architectures and analysis frameworks that have been proposed for the integration of large complex enterprise systems. Emphasis is placed on state-of-the-art approaches. Prerequisite: IE 5320.

**6302. FACILITIES PLANNING AND DESIGN (3-0).** Facilities planning through layout design. Product flow, space-activity relationships, personnel requirements, and material handling are considered, as well as receiving, shipping, warehousing, and integration with manufacturing. Facilities planning models are explored. Prerequisites: IE 3343, 5301 and 5329 or equivalent.

**6303. COMBINATORIAL OPTIMIZATION (3-0).** A survey of problems and algorithms in combinatorial optimization. Topics include shortest paths, minimum-weight spanning trees, matroids, matchings, optimal assignments and set packing. Prerequisite: IE 3315 or equivalent, or consent of instructor.

**6305. ENGINEERING MANAGEMENT I (3-0).** The management of the engineering function in high-technology industry with principal emphasis on the historical development of industrial management principles, decision-making and planning. Prerequisite: graduate standing.

**6306. ENGINEERING MANAGEMENT II (3-0).** The management of the engineering function in high-technology industry with principal emphasis on human resources and staffing, directing and leading, and controlling. Prerequisite: IE 6305 or consent of instructor.

**6308. DESIGN OF EXPERIMENTS (3-0).** Introduction to statistical design and analysis of experiments with applications from engineering, medicine and agriculture. Analysis includes analysis of variance, multiple comparisons and model adequacy. Designs include complete factorial, complete block, incomplete block, Latin square, Youden, two-level fractional factorial and hierarchically nested. Prerequisite: IE 5318 or consent of instructor.

**6309. RESPONSE SURFACE METHODOLOGY AND COMPUTER EXPERIMENTS (3-0).** Empirical model building and process optimization using experimental design and statistical modeling. The first half of the course covers first and second order models and designs, multiresponse experiments and mixture experiments. The second half introduces designs based on Latin hypercubes, orthogonal arrays, and number-based theoretic methods, plus models using kriging, multivariate adaptive regression splines and neural networks. Prerequisite: IE 6308.

**6310. INDUSTRIAL ROBOT APPLICATIONS (2-3).** A study of the requirements and selection criteria for the integration of robots into simple and complex industrial activities. Prerequisite: graduate standing.

**6399, 6699, 6999. DISSERTATION.** IE 6399 must be taken during a student's final semester. IE 6399 and 6699 are graded R/F only; 6999 is graded P/F/R. Prerequisite: approval of the student's supervisory committee and the Graduate Advisor.

A limited number of undergraduate courses may be applicable toward the graduate program if approved in advance by the Graduate Advisor.

# Program in Mechanical Engineering

www-mae.uta.edu

## Area of Study and Degrees

Mechanical Engineering

M.S., M.Engr., Ph.D.

## Master's Degree Plans

Thesis (M.S.) and Non-Thesis (M.Engr.)

### Director

Kendall Harris

204 Woolf Hall, 817-272-2561

### Graduate Advisor

Bo P. Wang

204 Woolf Hall, 817-272-2563

### Graduate Faculty

Professors

Agonafer, Aswath, Chan, Goolsby,

Haji-Sheikh, Hullender, Johnson,

Lawrence, Lu, Mills, Nomura,

Wang, Wilson, Woods, Yih, You

### Associate Professors

Harris, Shiakolas, Tong

### President Emeritus and Professor Emeritus

Woolf

### Professors Emeritus

Barker, Lawley, Wiseman

## Objective

The graduate program provides opportunities for professional development in such forms as: instructional courses to enhance technical competence in areas of mechanical engineering practice; training through a variety of experiences in design, development, research, experimentation, and/or analysis in joint efforts with faculty and peers; specialized courses of study required for entry into career fields allied to the mechanical engineering discipline; guided individual study under faculty supervision; and supportive coursework for programs leading to careers that require interdisciplinary competence.

A student with aid from a faculty advisor plans a program which will be consistent with his or her technical interests and the available facilities and course offerings. Typically, programs are classified as:

1. Automatic Control and Systems
2. Design
3. Fluid Mechanics
4. Heat Transfer
5. Manufacturing Processes
6. Solid Mechanics and Dynamics
7. Thermodynamics

## Admission Requirements

Applicants for the Master's degree who hold a baccalaureate degree in engineering must meet the general requirements of the Graduate School as stated in the section entitled "Admission Requirements and Procedures." Applicants not meeting all criteria will be admitted on provisional or probationary basis only under exceptional circumstances.

For applicants with no prior training in engineering, the same minimum criteria will apply and, in addition, their records will be reviewed in relation to the intended program of study. Probationary status with specific remedial work required may be a basis for acceptance of such applicants.

The acceptance of applicants who have already received a master's degree in engineering will be based on the above-mentioned minimum criteria and results of graduate work, including the master's thesis.

## Continuation

The Mechanical Engineering Graduate Program, in fulfillment of its responsibility to graduate highly qualified professional engineers, has established certain policies and procedures. In addition to the requirements of the Graduate School listed elsewhere, to continue in the program each mechanical engineering graduate student must:

1. Maintain at least a B (3.0) overall GPA in all coursework, and
2. Demonstrate suitability for professional engineering practice.

At such time as questions are raised by mechanical engineering graduate faculty regarding either of the above, the student will be notified and will be provided the opportunity to respond to the Committee on Graduate Studies in Mechanical Engineering. The Committee on Graduate Studies will review the student's performance and make a recommendation concerning the student's eligibility to continue in the program. Appeal of a decision on continuation may be made through normal procedures outlined in the section of this catalog entitled "Grievances Other than Grades."

## Degree Requirements

### Core Courses

**Thermal Science:** ME 5316 Thermal Conduction, ME 5317 Convection Heat Transfer, ME 5318 Radiative Heat Transfer, ME 5321 Advanced Classical Thermodynamics

**Fluid Science:** ME 5313 Fluid Dynamics, ME 5342 Advanced Gas Dynamics I, ME 5344 Viscous Flows,

**Design, Mechanics and Manufacturing:** ME 5310 Finite Element Methods, ME 5337 Introduction to Robotics, ME 5339 Structural Aspects of Design, ME 6314 Mechanisms,

**Controls and Systems:** ME 5303 Classical Methods of Control Systems Analysis and Synthesis, ME 5305 Dynamic Systems Modeling, ME 5307 Modern Methods of Control System Analysis and Synthesis, ME 5341 Control Systems Components.

### Analysis Courses

ME 5331, ME 5332, approved mathematics courses.

### Master of Science in Mechanical Engineering

The Master of Science degree is a research-oriented program in which completion of a thesis is mandatory. A minimum of 30 credit hours is required as follows: three core courses (one course each in three of the four areas) and two analysis courses listed above; three courses (nine credit hours) related to a specialty in mechanical engineering; and six credit hours of thesis. The student must enroll in ME 5398 or ME 6397 every semester in which the student is actively involved in thesis preparation or research, except that the student must enroll in ME 5698 in the semester of graduation.

### Master of Engineering in Mechanical Engineering

The Master of Engineering degree is an engineering practice-oriented program. A minimum of 36 credit hours is required as follows: four core courses (one in each area) and two analysis courses listed above; six courses (18 credit hours) of elective courses in engineering, mathematics, and/or science relating to the student's interest areas. The elective courses may include as many as six hours of special project courses (ME 5391).

### Manufacturing Engineering Option

Students desiring a program in manufacturing engineering may achieve this goal while meeting the requirements for a graduate degree in mechanical engineering. This is accomplished by selecting a specific program of courses. Upon completion, the student receives a Manufacturing Engineer's Certificate along with the MSME or MEME. Specifics are available in the Mechanical Engineering office.

### Doctor of Philosophy

The Ph.D. degree should normally require four years of full-time study after completion of the BS degree. There is no foreign language requirement for the Ph.D. degree.

To meet the educational goal of a broad-based technical background in mechanical engineering, it is expected that each student will take sufficient coursework to obtain in-depth knowledge in at least two areas of mechanical engineering. Consequently, the Department expects all Ph.D. candidates to complete at least the following minimum requirements beyond the B.S. degree:

1. Three core courses (nine credit hours) listed for the MS and M. Engr. degrees.
2. One additional course (three credit hours) at the graduate level in one of the broad areas of mechanical engineering outside the student's major area of specialization. Core courses are also acceptable for meeting this requirement.
3. Eight additional courses (24 credit hours) in the student's major area of interest. Master thesis can be used to substitute for six (6) credit hours.
4. Two courses (six credit hours) of engineering analysis (ME 5331, 5332, or other approved mathematics courses).
5. Two courses (six credit hours) of mathematics, numerical analysis, computer science, or statistics, outside of mechanical engineering.
6. Two courses (six credit hours) in science and/or engineering outside of mechanical engineering.
7. Nine credit hours (ME 6999) for Dissertation.

Final course requirements are determined by the student's supervising committee. In addition, a student must pass three examinations before being awarded the Ph.D. degree: the Diagnostic Exam, the Comprehensive Exam, and the Final Exam (or Dissertation Examination).

A Diagnostic Examination will be administered to the student within the first two semesters after a Master's degree or before the accumulation of 42 semester hours of graduate work beyond the baccalaureate degree. The Diagnostic Exam is a written test of the student's capability to pursue successfully the doctorate degree, and it aids in developing the program of study for the student. The Diagnostic Examination tests for fundamental knowledge in one technical area of mechanical engineering and mathematics. The students choose the technical area from the following four: (1) thermal/fluid sciences, (2) solid mechanics and structures, (3) systems and controls, and (4) mechanical design. The mathematics portion of the exam will be at the level covered in ME 5331 and 5332. The exam topics for the technical areas are given in the ME Ph.D. Diagnostic Exam handout. The Diagnostic Examination for Ph.D. students is offered the first month of the Fall and Spring Semesters each year.

A comprehensive examination will be administered to the student after the successful completion of all phases of the diagnostic examination and before the student starts research work for the dissertation. The comprehensive examination is used to determine if the student has the necessary background and specialization required for the dissertation research and if the student can organize and conduct the research. An applicant must pass this examination to be admitted to candidacy for the Ph.D. degree.

The student must enroll in at least three hours of dissertation course (ME 6399-6999) or research course (ME 6397-6999) every semester in which the student is actively involved in dissertation preparation or research, except that the student must enroll in ME 6999 in the semester of graduation.

The student must submit the Application for Candidacy and Final Program of Work to the Mechanical Engineering Committee on Graduate Studies immediately after completion of the Comprehensive Examination. Coursework taken for the Master's degree at this institution may be used to meet these requirements; however, courses listed for the Master's degree or any other degree cannot be listed as the actual course requirement on the Final Program of Work. Transfer work is not accepted in doctoral programs; however, such courses may provide a basis for waiving some course requirements.

The Final Examination (or Dissertation Examination) is an oral presentation of the dissertation in the form of a seminar before the student's Committee and is open to the members of the University

community. Approval of the dissertation by the members of the Dissertation Committee is required.

Please see the section entitled General Graduate School Regulations and Information in this Catalog for further details.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Mechanical Engineering (ME)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5303. CLASSICAL METHODS OF CONTROL SYSTEMS ANALYSIS AND SYNTHESIS (3-0).** Intended to equip the student with detailed familiarity with historically significant tools of the control engineer. Detailed discussion of block diagram algebra, the root locus, the Bode diagram, and state variable methods for simulation and control system design are presented.

**5305. DYNAMIC SYSTEMS MODELING (3-0).** To equip the student with the capability of determining the necessary equations to model a system of mixed physical types in an orderly, logical fashion. Lumped and distributed parameter modeling techniques formulated for computer simulation of mechanical, fluid, and thermal systems are presented.

**5306. FLUID POWER CONTROL (3-0).** Mathematical models for hydraulic and pneumatic control components and systems including hydraulic pumps, motors, and spool valves. The application of electrohydraulic and hydromechanical servomechanisms for position and velocity control are treated. Theory supported by laboratory demonstrations and experiments. Prerequisite: MAE 4310 or ME 5303.

**5307. LINEAR SYSTEMS ENGINEERING (3-0).** To equip the student with knowledge of systems applications of the state-space concept and real-time solution techniques. State-space formulations, reference trajectory, linearization, linear vector spaces, the state transition matrix and its properties; and controllability and observability concepts treated. Also offered as AE 5334.

**5308. MODERN CONTROL I (3-1).** Introduces multivariable robust and optimal control design theory with emphasis on LQG, H<sub>2</sub>, H<sub>∞</sub>, QFT, and computer solutions using loop transfer recovery (LTR). Feedback fundamentals including limitations on performance, Bode's integral theorem, and generalizations of Nyquist Stability to

multivariable systems are discussed in depth. Prerequisite: ME 5307 or equivalent.

**5309. NONLINEAR (AI) CONTROL (3-1).** Emphasizes artificial intelligence (AI) methods as applied to feedback control systems. Fuzzy Logic and Neural Net based controllers with structures that yield nonlinear robust and adaptive controllers are studied. Prerequisite: ME 5308 or consent of instructor.

**5310. FINITE ELEMENT METHODS (3-0).** Finite element method in the study of the static response of complex structures and of continua; applications to field problems; analytical methods emphasized, and digital computer application undertaken.

**5311. STRUCTURAL DYNAMICS (3-0).** Natural frequencies; forced and random response of complex structural systems studied through the use of the finite element method; computational aspects of these problems discussed, and digital computer applications undertaken.

**5312. CONTINUUM MECHANICS (3-0).** Study of the underlying physical and mathematical principles relating to the behavior of continuous media; interrelationships between fluid and solid mechanics.

**5313. FLUID DYNAMICS (3-0).** Basic conservation laws, flow kinematics, special forms of the governing equations, two-dimensional potential flows, surface waves and some exact solutions of viscous incompressible flows. Also offered as AE 5313.

**5314. FRACTURE MECHANICS IN STRUCTURAL DESIGN (3-0).** Linear elastic fracture mechanics, general yielding fracture mechanics, damage tolerance and durability design, fail safe and safe life design criteria, analysis of fatigue crack growth, residual strength analysis.

**5316. THERMAL CONDUCTION (3-0).** Fundamental laws, initial and boundary conditions, basic equations for isotropic and anisotropic media, related physical problems and steady and transient temperature distributions in solid structures.

**5317. CONVECTION HEAT TRANSFER (3-0).** Equations of motion of viscous fluids are reviewed and the energy equations are introduced. Exact and approximate solutions are made for forced convective problems with non-isothermal and unsteady boundaries. Free convection and combined free- and forced-convection problems are solved.

**5318. RADIATIVE HEAT TRANSFER (3-0).** General equations of radiative transfer derived and solved for special problems, and the elements of atomic, molecular and continuum radiation are introduced.

**5319. ADVANCED FINITE ELEMENT METHODS (3-0).** Continuation of ME 5310. Modeling of large systems, composite and incompressible materials, substructuring, mesh generation, solids applications, nonlinear problems. Prerequisite: ME 5310 or equivalent.

**5321. ADVANCED CLASSICAL THERMODYNAMICS (3-0).** Fundamentals of thermodynamics reviewed. Different treatments of principles studied, compared and formal relationships developed and applied to chemical, magnetic, electric and elastic systems.

**5322. ADVANCED STRUCTURAL DYNAMICS (3-0).** Normal mode method for undamped and proportionally damped systems, component mode synthesis, generally damped systems, complex modes, effect of design modification on system response. Prerequisite: ME 5311 or equivalent.

**5325. COMBUSTION (3-0).** Fundamental treatment of problems involving simultaneous occurrence of chemical reaction and transfer of heat, mass and momentum. Topics include kinetically controlled combustion phenomena; diffusion flames in liquid fuel combustion; combustion of solids; combustion of gaseous fuel jets; flames in premixed gases.

**5328. ENGINEERING VECTOR AND TENSOR ANALYSIS (3-0).** Introduction to the related topics of vector analysis, matrix algebra,

and three dimensional tensor analysis. Material covered includes curvilinear coordinates, differential and integral operations; transformation properties of tensors; invariance, eigenvalues, and eigenvectors; isotropy. Theory is illustrated with engineering examples. Also offered as AE 5321. Credit will be granted only once.

**5329. COMPUTER CONTROL OF MANUFACTURING SYSTEMS (3-0).** Fundamentals in NC and CNC for machine tools; motion control, interpolation techniques and programming; industrial robot concepts, control, programming and application; shop floor communication; programmable controllers.

**5330. MECHATRONICS (3-0).** Analog and digital circuits in mechanical systems; electrical-mechanical interfacing; analysis and application of computerized machinery; motor, actuator and mechanical component selection; position, velocity and force measurement; performance prediction and testing techniques.

**5331. ANALYTIC METHODS IN ENGINEERING (3-0).** Introduction to advanced analytic methods in engineering. Methods include multivariable calculus and field theory, Fourier series, Fourier and Laplace Transforms. Prerequisite: undergraduate degree in engineering, physics, or mathematics.

**5332. ENGINEERING ANALYSIS (3-0).** Introduction to partial differential equations and complex variable theory with application to modeling of physical systems. Prerequisite: undergraduate degree in engineering, physics, or mathematics.

**5333. MICROPROCESSORS AND APPLICATIONS (3-0).** Microprocessor and microcomputer based systems for applications in mechanical engineering are studied. Programming, interfacing, and applications design are included.

**5334. DYNAMIC AND STATISTICAL DATA ANALYSIS (3-0).** Fundamentals of probability theory and statistics as related to conventional mechanical engineering problems. These principles applied to problems in random vibrations and in the behavior of dynamic systems due to random disturbances and conditions. Also offered as AE 5324.

**5335. AUTONOMOUS VEHICLE DESIGN (3-0).** Survey of system integration issues related to design and implementation of controllers and other subsystems for semi- and fully-automated mobile robotics. Topics from low-cost sensor integration to high-level mission planning are covered via original design/implementation projects completed by students.

**5336. KALMAN FILTERING (3-0).** Kalman filter design and implementation. Optimal filtering for discrete-time and continuous-time dynamical systems with noise. Wiener filtering. State-space determination. Prerequisites: permission of instructor. Also offered as AE 5336 and EE 5322. Credit will be granted only once.

**5337. INTRODUCTION TO ROBOTICS (3-0).** An overview of industrial robots. Coordinate systems and homogeneous transformations, kinematics of manipulators; motion characteristics and trajectories; dynamics and control of manipulators. Demonstration of robot programming using an industrial robot.

**5338. COMPUTER AIDED ROBOTICS (2-1).** Introduce the students to advanced state of the art industrial strength computer tools for the simulation, verification and design of robotically assisted manufacturing processes. Introduce the students to software and design techniques for custom manipulator design. Hands on experience with the tools and hardware available in the robotic research lab.

**5339. STRUCTURAL ASPECTS OF DESIGN (3-0).** Emphasis on determination of stresses and prediction of failure in machine and structural components; stress-strain relations in elastic and plastic regions; static failure and failure criteria; residual stress and strain due

to yielding; contact stress; notched sensitivity; strain-fatigue life relationship; characteristics of crack in structural components; creep and creep rupture.

**5340. AUTOMOTIVE ENGINEERING (2-2).** Analysis and design of automotive systems including power train, suspension, frame and chassis, braking systems, and control systems. Emphasis on racing applications and performance. Lectures are augmented with hands-on experience.

**5341. CONTROL SYSTEM COMPONENTS (3-0).** The components and hardware used in electronic, hydraulic, and pneumatic control systems; techniques of amplification, computation, compensation, actuation, and sensing; modeling of multiport systems as well as servo systems analysis. Prerequisite: MAE 4310 or ME 5303.

**5342. GASDYNAMICS (3-0).** Review of fundamental compressible flow theory, method of characteristics for perfect gases, the Rankine-Hugoniot conditions, linearized flow theory. Also offered as AE 5342.

**5343. TWO-PHASE FLOW AND BOILING HEAT TRANSFER (3-0).** This is to introduce significant progress in phase change heat transfer and two-phase flow. Boiling heat transfer will be followed by the study of pressure drop and heat transfer in the pipes of two-phase flow. Boiling heat transfer includes pool boiling, forced convection boiling, and critical heat flux. Also selected topics by the instructor (heat pipe, condensation, Helmholtz wave instability, etc.)

**5344. VISCOUS FLOWS (3-0).** Navier-Stokes equations and Prandtl's boundary layer approximations; laminar and turbulent boundary layers including internal and external flows.

**5345. NUMERICAL HEAT TRANSFER (3-1).** Discussion of numerical methods for conduction and convection heat transfer problems includes introduction to various computational techniques suitable for digital computers. Finite difference method is emphasized.

**5346. COOLING OF ELECTRONIC PACKAGES (3-0).** This course deals with the development and application of analytical models of thermal phenomena occurring in electronic equipment. The calculation of heat loads and temperature fields using different cooling techniques. Includes parameter evaluation and design studies. Prerequisite: MAE 3311.

**5347. HEAT EXCHANGER DESIGN (3-0).** Design procedures, system evaluations and design parameters in heat exchangers. Heat exchanger configurations; student design projects. Prerequisite: MAE 3314.

**5348. FUNDAMENTALS OF COMPOSITES (3-0).** Fundamental mechanics concepts of fiber-reinforced composites; relationships between the properties of the constituents and those of the unit composite ply; lamina and laminate anisotropic behavior; structural characteristics of A, B, and D matrices; lamination theory; strength criteria; hygrothermal analysis; interlaminar stress analysis. Also offered as MSE 5348 or AE 5315.

**5349. ADVANCED COMPOSITES (3-0).** Review of current state-of-the-art applications of composites; structural properties; structure analysis; damage characterization and failure mechanism; notched sensitivity; delamination; fatigue characteristics; composite material testing; characteristics of composite joints. Also, offered as MSE 5349. Prerequisite: ME 5348 or MSE 5348 or AE 5315, or consent of instructor.

**5351. PRINCIPLES OF SOUND AND VIBRATION CONTROL (3-0).** Fundamental principles of sound and vibration control will be developed. The coupling of mechanical vibrations to unwanted acoustic radiation will be examined using time domain analysis, frequency domain (spectral) analysis and correlation techniques. Standard control methods, including active vibration suppression, will be covered. Prerequisite: permission of instructor.

**5352. FUNDAMENTALS IN ELECTRONIC PACKAGING (3-0).**

An introductory treatment of electronic packaging, from single chip to multichip, including materials, electrical design, thermal design, mechanical design, package modeling and simulation, processing considerations, reliability, and testing. Prerequisites: Heat Transfer, Material Science and Fluid Dynamics.

**5353. APPLICATION OF COMPUTATIONAL TECHNIQUES TO ELECTRONIC PACKAGING (3-0).** This course will develop the student's capability to characterize the heat performance of electronic cooling devices by using "Commercial Computational Heat Transfer Codes (IDEAS ESC, Icepack, Flotherm, CFDace, ...)." In addition, the use of MacroFlow, a network based model, for system-level thermal design for electronics cooling will be presented. A number of industry-related problems ranging from first-level packages through system-level packages would be analyzed. At the end of the class, a student is expected to formulate and model complex industry-based problems using the commercial CFD codes. There will be frequent industry speakers on specific projects being studied in the class.

**5354. FAILURES AND THEIR PREVENTION IN ELECTRONIC PACKAGES (3-0).** A comprehensive overview of the fundamental causes for failures in electronic assemblies which include the printed wiring board, package, and second-level assemblies. Failure detection techniques and methodologies, key failure analysis techniques used will be discussed.

**5355. MECHANICAL FAILURE OF ELECTRONIC PACKAGES (3-0).** Failure analysis, fatigue of electronic packages, fracture and creep behavior of solders. Mechanical properties of substrate materials. Electromigration and failure mechanisms.

**5356. CHIPSCALE PACKAGING (3-0).** Overview of area array packaging with special emphasis on the maturing chip-scale packaging technology. Topics covered will include the design concepts of this technology, the materials related aspects, the manufacturing processes, and their reliability in a variety of applications.

**5360. MULTIDISCIPLINARY INVERSE DESIGN AND OPTIMIZATION (3-0).** Introduce a variety of basic concepts and methodologies for inverse design and optimization with practical applications in fluid mechanics, heat transfer, elasticity and electromagnetism. Prerequisite: basic courses in fluid mechanics, structures, or heat transfer, or permission of instructor.

**5361. MULTIDISCIPLINARY COMPUTATIONS (3-0).** Concurrent engineering analysis involving fluid flow, heat transfer, structures, and electromagnetism; design optimization methods for multidisciplinary problems. Prerequisite: permission of the instructor.

**5362. OPTIMUM DESIGN AND CONTROL OF ROBOT MANIPULATORS (3-0).** Application of optimization techniques to the design, analysis, and control of robot manipulators. The topics include the optimum design of robotic systems with maximum

workspace, design of constant/minimum inertia robot, optimum design of robot drive, control with minimum energy trajectory, etc.

**5363. INTRODUCTION TO ROTORCRAFT ANALYSIS (3-0).** History of helicopters, behavior of the rotor blade in hover and forward flight, helicopter rotor configurations, dynamic coupling with the fuselage, elastic and aeroelastic behavior of helicopter and tilt rotor systems. Also offered as AE 5363. Credit will be granted only once.

**5371. MICRO- AND NANO-ENGINEERING (3-0).** Fundamentals of micro- and nano-engineering will be introduced. The topics include MEMS/NEMS design, modeling and simulation, scaling laws in miniaturization, applications (e.g., sensors and actuators), and basic quantum mechanics.

**5390. SPECIAL TOPICS IN MECHANICAL ENGINEERING (3-0).** Seminar to provide formal instruction in special topics pertinent from semester to semester depending on the availability of faculty. May be repeated provided topics differ.

**5191, 5291, 5391. ADVANCED STUDIES IN MECHANICAL ENGINEERING.** May be repeated for credit as topics change. Work performed as a thesis substitute will normally be accomplished under this course number, with prior approval of the Committee on Graduate Studies. Graded P/F.

**5398, 5698, 5998. THESIS.** 5398 graded R/F only; 5698 and 5998 graded P/F/R. Prerequisite: graduate standing in mechanical engineering.

**6314. MECHANISMS (3-0).** Rational design of linkages to satisfy various design requirements. Two- and three-dimensional motions considered. Computer-aided mechanism design used as a tool.

**6316. ADVANCED ROBOTICS (3-0).** Advanced design concepts such as application of optimization technique and analytical approaches such as 3-D homogeneous matrix method will be introduced. Structural dynamics and control strategy for both rigid and flexible manipulators will be studied

**6337. COMPUTER AIDED DESIGN (3-0).** Role of graphics; image representation, batch and interactive computing, methods of automated mathematical model generation, mainframe and microcomputing in engineering design. Application in mechanical, structural, thermal, controls areas of mechanical engineering.

**6344. HEAT TRANSFER IN TURBULENT FLOW (3-0).** Introduction to heat transfer in turbulent boundary layers including internal and external flows, turbulence structure, the Reynolds analogy, van Driest hypothesis, high and low Prandtl number two equation model, effects of surface roughness on heat transfer.

**6197-6997. RESEARCH IN MECHANICAL ENGINEERING.** May be repeated for credit. Graded P/F/R.

**6399, 6699, 6999. DISSERTATION.** 6399 and 6699 graded R/F only; 6999 graded P/F/R.

# The College of Liberal Arts

Interim Dean: Beth S. Wright, Ph.D.  
210 University Hall • Box 19617 • 817-272-3291 • [www.uta.edu/libarts](http://www.uta.edu/libarts)

## Mission and Philosophy

The mission of the College of Liberal Arts is to provide a learning community wherein students are provided both broad-based and specialized education and to vitalize the educational process by creating and transmitting knowledge through research, scholarship and creative activity.

The college is characterized by a diversity of intellectual styles and interests. Departments and programs cluster into social sciences, humanities and fine arts. Liberal Arts disciplines address the rich meanings of human experience and expression and liberate the imagination by producing knowledge and creating beauty.

The faculty and administration of the college address the traditional objectives of liberal arts in the University: 1) to develop the tools for analysis, appreciation and communication; for written and oral expression; for comprehension, interpretation, and analysis of textual material; for analytic reasoning and scientific method; and for appreciation of aesthetic experience; 2) to prepare students for a range of careers in academia and public and private sector organizations. Graduates of the college contribute to the region, the state and the nation as college and university professors, elementary and secondary teachers, legal professionals, in government agencies, social services, international business and industry, media and advertising, health and recreation, and cultural and entertainment industries; and 3) to promote understanding and critical evaluation of the cultural milieu—the attitudes and ideas that shape institutions and strategies in societies.

Accomplishing these objectives culminates in students reaping the creative, utilitarian and life enriching benefits of a liberal arts education.

## History and Overview

The University of Texas at Arlington College of Liberal Arts acquired its first graduate degrees in 1968, with the establishment of M.A. programs in English and history. Since that time, the number of M.A. programs offered has expanded to 13. In 1974, the college established its first Ph.D. level program, Humanities. The Humanities Program was reorganized in 1997 and replaced by three new Ph.D. level programs in English (Literature and Rhetoric/Composition tracks), History (transatlantic) and Linguistics.

## Scholastic Activity and Research Interests of the Faculty

The faculty in the College of Liberal Arts excel in their roles as educators, creative scholars and researchers. Seven faculty members have won the Academy of Distinguished Teachers Award, and eight faculty are Chancellor's Teaching Award recipients. Two of our faculty have won the prestigious Piper Award from the UT System. Several faculty from a variety of departments in the college also have won the University Research Achievement Award. Numerous faculty have

received recognition for their published scholarship, including Pulitzer Prize nominations and the *Choice* magazine Outstanding Academic Book Award. The Jenkins and Virginia Garrett Endowed Chair in Greater Southwestern Studies and the History of Cartography was created in 1995 and is currently held by David Buisseret, Ph.D. Three faculty from the College of Liberal Arts have been selected to be recipients of the Academy of Distinguished Researchers.

The scholarly activities and research of the faculty cover a range of areas represented within the 13 disciplines in the college. History faculty research interests center on transatlantic broadly defined, and research specializations of faculty include southern, western and southwestern history, frontier development, women and gender, urban and labor and public history. English faculty research strengths lie in the areas of American, British and comparative literatures; and rhetoric, composition and criticism. Linguistics faculty specialize in field linguistics. Numerous faculty throughout the college also conduct research on gender and women's issues. Anthropology faculty members recently became the first foreign archaeological team to excavate in Albania in more than 50 years.

## Special Programs and Opportunities

The College of Liberal Arts provides a number of special programs and opportunities for graduate students. College lecture series and seminars, conferences, publications, academic centers, library collections and an art gallery provide a mosaic of events and resources that enrich the university community.

### Lecture Series, Seminars and Conferences:

- Each year the English Department sponsors the Hermann Lecture series, which brings scholars from UTA and other universities together for discussions and master classes on an issue of general theoretical interest.
- The History Department presents the Walter Prescott Webb Memorial Lectures each March. Nationally prominent speakers make presentations on an annual topic, followed by a dinner in the University Center and a keynote address.
- Graduate students in Linguistics sponsor a Linguistics Conference each year. This conference provides an opportunity for students to begin their professional careers by organizing the sessions, reviewing paper abstracts and presenting their own research.
- The Women's Studies Program organizes an annual, month-long Women's History Month Lecture Series. Exhibits and film/video presentations also are included as part of the events scheduled during the month of April. The Women's Studies Brown Bag Colloquium is another forum for scholars, primarily UTA faculty, to share their research with the University community.
- The Criminal Justice and Criminology Program sponsors a Brown Bag Lecture Series every spring semester, and students have the opportunity to receive credit for practicums.

- The Philosophy Lecture Series is sponsored by the Department of Philosophy and Humanities, together with the Philosophy Club at UTA. Each semester, a philosopher of national or international reputation from another university is invited to the UTA campus to lecture on a topic of current philosophical interest.
- The Department of Political Science hosts the annual Haggard Lectures, bringing in nationally and internationally known scholars in the field.
- Each spring the Department of Sociology and Anthropology hosts the annual Termini Lecture Series in Anthropology, which brings a nationally prominent anthropologist to campus to speak on topics of general interest. The speaker typically presents a public lecture and a more informal presentation, primarily for the benefit of students, on a related topic.

## Publications

- The Program in Linguistics publishes "Working Papers in Linguistics" and the "SIL/UTA Publications in Linguistics Series" (published in conjunction with the Summer Institute of Linguistics). These publications provide an opportunity for professional linguists and graduate students to disseminate their research findings.
- The History Department publishes an annual volume comprised of Webb Lecture Series papers.
- The English Department houses the online literary review "Znine" and the online journal "Pretext."
- The Center for Theory houses the online journal "Fast Capitalism."
- Individual departments/programs publish newsletters which provide news and information about and for students, faculty and alumni.

## Centers

The College of Liberal Arts houses numerous centers designed to promote scholarship, research and teaching. These centers organize conferences, lecture series and workshops and provide a conduit for making faculty expertise available to the community. College of Liberal Arts centers are listed below and described in the Facilities for Advanced Studies and Research section of this catalog.

- The Center for Criminal Justice Research and Training
- The Center for Greater Southwestern Studies and the History of Cartography
- The Center for Mexican American Studies
- The Center for Post-Soviet and East European Studies
- The Center for Social Research
- The Center for Theory
- The English Language Institute
- The International Linguistics Center
- The Language Acquisition Center
- The Women and Minorities Research and Resource Center

## Other Resources

- In support of the history M.A. and Ph.D. programs, the UTA Library Special Collections houses the Jenkins Garrett Library of Texana and Mexican War historical material and the Cartographic History Library. In addition, Special Collections has material on U.T. Arlington's history since 1895, the history of organized labor in Texas and the Southwest, and Yucatan and Honduran archival materials.
- The Gallery at UTA presents a full program of major exhibitions in its 4,000-square-foot gallery, including lectures, symposia, screenings and publications. The Gallery's program demonstrates the complementary roles of visual and verbal literacy.
- The Department of Modern Languages has a Language Laboratory which produces innovative software in language learning.
- The Department of Music offers laboratory facilities and the Fine Arts Library contains an extensive collection of recordings and publications relating to musical performance and theory.
- The Anthropology Program has a biological anthropology lab, and offers an archaeological field school every summer where students can gain academic credit for learning and applying archaeological field methods.
- Numerous student organizations exist on campus to provide students with the opportunity to interact with peers in their disciplines. These student groups include interdisciplinary organizations for graduate students interested in Medieval Studies and Rhetoric; and honor societies for Anthropology, Communication, Criminal Justice, English, History, Political Science, and Sociology, as well as specialized interest groups.
- Student awards, scholarships and teaching and research assistantships are available in many College of Liberal Arts departments and programs. Each spring the History Department awards an outstanding graduate student the Wolfskill Prize, a cash award and plaque representing superior attainment in history studies. The English Language Institute, a part of the Program in Linguistics, provides graduate teaching assistantships. A McNair Fellowship is sponsored by the Office of the Dean.

## Programs

The College of Liberal Arts offers the following graduate degree programs:

- Anthropology, M.A.
- Communication, M.A.
- Criminology and Criminal Justice, M.A.
- English, M.A., Ph.D.
- History, M.A.; Transatlantic History, Ph.D.
- Humanities, M.A.
- Linguistics, M.A., Ph.D.; TESOL, M.A.
- Modern Languages (French and Spanish), M.A.
- Music Education, M.M.
- Political Science, M.A.; Public Administration, M.PA.
- Sociology, M.A.



## Objective

The graduate course offerings in art history are provided to support other graduate degree programs, for example, an art history concentration in Humanities, and to meet the express needs of students. No program leading to a graduate degree in art or art history exists at this time.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Art History (ART)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5320. HISTORY OF ART CRITICISM (3-0).** Survey of the sources of art history and its literature from classical antiquity to the modern period.

**5330. SEMINAR IN SPECIAL TOPICS IN ART HISTORY AND CRITICISM.** May be repeated for credit as the topic changes.

**5391. INDEPENDENT STUDY (3-0).** Independent research projects in art. Must be stated in writing and approved by supervising faculty and Graduate Advisor prior to registration. May be repeated for credit.

## Department of Art and Art History

[www.uta.edu/art](http://www.uta.edu/art)

### Area of Study and Degrees Humanities

M.A.

(See Program in Humanities)

### Chair

Andy Anderson

335 Fine Arts, 817-272-2891

### Graduate Faculty

Professor

Wright

Associate Professor

Vaccaro

Assistant Professor

Shields

# Department of Communication

www.uta.edu/communication

## Areas of Study and Degrees

Communication

M.A.

## Master's Degree Plans

Thesis and Non-Thesis

## Chair

Karin McCallum

118 Fine Arts, 817-272-2163

## Graduate Advisor

Earl Andresen (M.A. Program)

271 Fine Arts, 817-272-2652

andresen@uta.edu

## Graduate Faculty

Professors

Andresen, McCallum

## Associate Professors

Ingram, Markham Shaw, White

## Assistant Professors

Cereijo, Christie, Clark, Jang,

Schrodt, Segvic, Witt, Zwarun

## Objectives

The Master of Arts in Communication is designed to provide a means of career enhancement for media and organizational professionals. The program includes the areas of Communication Technology, Communication Studies, and Media Management and is designed to meet the educational needs of recent undergraduates, media professionals who need more specialized training for career advancement into media management, and organizational professionals who need to extend their knowledge of communication processes at the interpersonal, organizational, and mass media levels. The program is designed to be flexible so that specific needs and goals of students may be supported. All students complete foundation courses in communication and research methods, and work with the Graduate Advisor to select courses in communication, marketing, and political science that support their goals. Specifically, the program's curriculum incorporates communication principles with the technology required in business and industry today and emphasizes the integrated nature of the communication discipline.

The program offers specialized education in the management of media resources, the changing role of the media in an information society, and a theoretical and ethical framework for considering the impact of the media upon society.

Organizational professionals can focus on working with both external and internal constituencies and communication processes of management, training and development, and human resources.

## Admission Standards

Prospective students must apply for admission through, and supply all information required by, the Graduate School. In addition, the following information will be considered in determining admission status into the program: undergraduate GPA, GRE scores, letters of recommendation and an essay. All criteria are considered together; no single factor will eliminate a prospective student from consideration. The following table outlines specific requirements for unconditional and probationary admission.

## Graduate Admission Standards

Admission Criteria	Unconditional		Probationary
GPA on last 60 hours of Undergraduate Program (as calculated by Graduate School of UTA)	3.3	3.0*	2.8-2.99
GRE	Evaluated	Evaluated	Evaluated
3 letters of recommendation	Evaluated	Evaluated	Evaluated
Essay	Evaluated	Evaluated	Evaluated

## Administration

\* Minimum undergraduate GPA requirement for unconditional admission is a 3.0 on a 4.0 scale.

Students not meeting unconditional criteria will be reviewed by a committee of Chair of the Department of Communication, Graduate Advisor, and Graduate Program Committee. The committee will review the following: a minimum undergraduate GPA of 2.8 (in last 60 hours of undergraduate work); GRE scores (verbal, analytical and quantitative); letters of recommendation; and essay. An applicant who performs successfully on a majority of these criteria will be admitted on probation. The committee will make a final admission decision and document that decision for the student record.

## Unconditional Admission

Criteria for unconditional admission status are designated in the previous table.

## Probationary Admission

Criteria for probationary admission status are designated in the previous table. When on probation, students can make no grade lower than a 3.0 in their first 12 semester hours of graduate coursework.

## Provisional Admission

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements.

## Deferred Status

Deferred decision is granted when a file is incomplete or when a denied decision is not appropriate.

## Denial of Admission

An applicant will be denied admission if he or she has less than satisfactory performance on a majority of admission criteria listed in the previous table.

## Fellowship Criteria

Fellowship selection will be based on the highest GPA in the last 60 hours of the bachelor's degree program. Candidates for fellowships must meet the following criteria:

1. New students coming to U.T. Arlington in the Fall of each semester.
2. Have a GPA of at least 3.0 in their last 60 hours of their bachelor's degree program.
3. Minimum 3.0 GPA in graduate credit hours.
4. Enrolled in a minimum of 6 semester hours in the long semesters.

## Degree Requirements

The Master of Arts in Communication degree offers both thesis and non-thesis options. The thesis option will require 30 hours that will include 24 credit hours of coursework and a 6-credit-hour thesis. The non-thesis option will require 36 hours that will include 33 credit hours of coursework and a 3-credit-hour project. A final comprehensive examination will be required of students in both options.

## Courses required of all students in the proposed program:

COMM 5300	Communication Theory	3
COMM 5305	Communication Research	3
	Total	6

## Courses freely elected by students:

*Thesis Option:* Select at least 9 hours from the following communication electives.

*Non-Thesis Option:* Select at least 21 hours from the following communication electives.

COMM 5192, 5292, 5392	Seminar
COMM 5310	Persuasion
COMM 5316	Corporate Communication
COMM 5320	Visual Communication
COMM 5321	Internet Marketing Communication
COMM 5323	Advanced Web Site Communication
COMM 5332	Professional and Technical Communication
COMM 5335	Intercultural/International Communication
COMM 5341	Media Management
COMM 5345	Communication Campaigns

*Up to 9 hours may be from the following or other approved courses outside the department.*

MARK 5311	Marketing
MARK 5320	Buyer Behavior
MARK 5326	Integrated Marketing Communication
MARK 5327	Research for Marketing Communication
MARK 5329	Sales and Sales Management
MARK 5340	Marketing Strategy
POLS 5315	American Political Institutions
POLS 5350	Topics in Political Behavior and Processes

*Thesis Option.* (30 semester hours total) 24 semester credit hours of coursework and a thesis, for which 6 semester hours are given. The final comprehensive examination will consist of an oral defense of the thesis and an oral exam.

*Non-Thesis Option.* (36 semester hours total) 33 semester credit hours of coursework and a project for which 3 semester credit hours are given. The final comprehensive examination will consist of a written and/or oral exam covering the coursework and project.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses

and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Communication (COMM)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5192, 5292, 5392. SEMINAR (1 to 3 hours).** Special topics. Topic varies from semester to semester. May be repeated when topic changes.

**5300. COMMUNICATION THEORY (3-0).** Advanced study of communication theories: interpersonal, organizational, mass media and intercultural.

**5301. SUPERVISED TEACHING (3-0).** Application of theory to the practices of teaching college courses in communication. Students will handle all aspects of the classroom including lecturing, conducting class discussions, issuing assignments, grading and assigning grades under the supervision of the course director. No unit credit will be allowed toward advanced degree.

**5305. COMMUNICATION RESEARCH (3-0).** Study and application of communication research, design and methodology.

**5310. PERSUASION (3-0).** A comparison of traditional with contemporary behavioral science theories of persuasive discourse and their supporting research.

**5316. CORPORATE COMMUNICATION (3-0).** Examines organizational communication strategies with special emphasis on how communication affects corporate constituencies. Corporate image and identity are linked to corporate advertising, press releases, financial communication, internal communication and crisis communication.

**5320. VISUAL COMMUNICATION (3-0).** Theory of visual communication in technical communication. Practice includes conceptualization, development and production.

**5321. INTERNET MARKETING COMMUNICATION (3-0).** Study of the use of information technology to optimize advertising, promotion, public relations and sales functions. Examines an infrastructure of the Internet and how it affects information retrieval, Web design, Web site management and Web site security. Discusses research strategies, usage trends and social implications.

**5323. ADVANCED WEB SITE COMMUNICATION (3-0).** Advanced study of mass media and organizational Web site information architecture, design, aesthetics, and Web site management; communication theory as applied to operational Web sites for profit and non-profit organizations.

**5332. PROFESSIONAL AND TECHNICAL COMMUNICATION (3-0).** Theory and practice in written and oral presentations with an emphasis on business and technical professions.

**5335. INTERCULTURAL/INTERNATIONAL COMMUNICATION (3-0).** Examination of verbal and nonverbal barriers to effective intercultural and international communication such as ethnocentrism, stereotyping, prejudice, racism, proxemics, kinesics, haptics and chronemics. Developing effective communication in intercultural and international contexts.

**5341. MEDIA MANAGEMENT (3-0).** Study of media policy and regulation; media, cultural, and management theories; media economics; accounting and finance; business strategy, management and marketing.

**5345. COMMUNICATION CAMPAIGNS (3-0).** Advanced study of communication theories and research with the goal of developing strategic communication plans, including the selection of the appropriate vehicles and creative tactics. Team project required.

**5394. PROJECT (3-0).** Student execution of a research project intended for a professional audience, or a professional media project intended for publication or distribution to a general or targeted audience. Prerequisites: satisfactory completion of comprehensive examination and consent of project advisor.

**5398. THESIS (3-0).** Student execution of a research project on a subject of primarily theoretical interest, intended for an academic audience. Prerequisites: satisfactory completion of comprehensive examination and consent of thesis advisor.

## Speech (SPCH)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5310. PERSUASION (3-0).** A comparison of traditional with contemporary behavioral science theories of persuasive discourse and their supporting research.

**5320. AMERICAN PUBLIC ADDRESS (3-0).** Examination of significant public discourse throughout American history considering its intellectual merit and cultural influence on American life and character.

**5330. FREEDOM OF EXPRESSION (3-0).** Reading and analysis of legal, philosophical, and rhetorical works concerned with the First Amendment, especially as applied to communication in the 20th Century.

## Journalism (JOUR)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5341. MEDIA ANALYSIS OF URBAN INDICATORS (3-0).** Analysis of media information systems for reporting social, economic, demographic, political trends in urban environment; precision reporting through use of statistical indicators, survey methodology.

## Objectives

The program leading to the MA degree in criminology and criminal justice offers a comprehensive examination of the criminal justice system, an exploration of deviant behavior, a foundation in research and statistics, and an opportunity to explore other relevant topics of interest to the student.

It is designed for:

1. Pre-professional students who wish to pursue a career in some aspect of criminal justice, or in a related field, and to develop the perspectives and knowledge appropriate to doing so;
2. In-service professionals who wish to enhance and broaden their knowledge in this and related areas of study;
3. Students—pre-professional or in-service—who wish to pursue further relevant post-graduate studies, whether academic or professional.

To meet these objectives, and to develop a broadly-educated student, the program offers several options.

The coursework (non-thesis) option is generally recommended for students who do not intend to pursue doctoral-level studies. Pre-professional students may be expected to include the practicum in their course of study or, alternately, to select the thesis-substitute option. That option, too, requires an internship/practicum (professional or pre-professional work experience in an appropriate setting), but also requires a subsequent thesis-level internship report.

The thesis option is generally recommended for students wishing to pursue doctoral level studies. For those without professional experience in the field, however, the thesis-substitute may be a desirable alternative.

With the approval of the Graduate Advisor, students may also use their elective hours to concentrate on a particular field of study, such as sociology or political science, or on a multidisciplinary approach to a particular focus, such as administration or research.

## Admission and Degree Requirements

The MA degree in criminology and criminal justice requires a minimum of 36 semester hours, regardless of the option selected, and includes 24 semester hours of required core coursework.

1. **Core:** CRCJ 5301, CRCJ 5350, CRCJ 5309, CRCJ 5319, CRCJ 5327, CRCJ 5332, and CRCJ 5380, plus any one of the following: SOCI 5303 or SOCI 5304 or SOCW 5322 or URPA 5302 or URPA 5342.
2. **Electives:** The number of semester hours available for electives ranges from a minimum of 6 to 12, depending on the option selected (thesis, thesis-substitute, coursework). Ordinarily, elective hours are taken in areas of particular interest to the student, with the advice and approval of the Graduate Advisor.

All candidates for the graduate degree must pass a final comprehensive examination, written, oral, or both written and oral. The scope, content, and form of this examination will be determined by the student's supervising committee.

## Department of Criminology and Criminal Justice

[www.uta.edu/criminology](http://www.uta.edu/criminology)  
[www2.uta.edu/crimgradprogram](http://www2.uta.edu/crimgradprogram)

Area of Study and Degree  
Criminology and Criminal Justice  
M.A.

Master's Degree Plans  
Thesis, Thesis Substitute and Non-Thesis

Chair  
Robert L. Bing III  
362 University Hall, 817-272-3318

Graduate Advisor  
Alejandro del Carmen  
303 University Hall, 817-272-3318

Graduate Faculty  
Associate Professors  
Bing, del Carmen, Polk

Assistant Professors  
Ahmad, Dobbs, Stickels

Professor Emeritus  
MacKenna

The criminology and criminal justice graduate program adheres to the following admission criteria.

### Unconditional Admission

In addition to having satisfied the requirements set forth by the UTA Graduate School, as outlined in the graduate catalog, applicants seeking unconditional admission to the CRCJ graduate program are required to meet the following four criteria:

1. Must have successfully completed a baccalaureate degree in criminology/criminal justice or related discipline.
2. A minimum GPA of 3.0 in the last 60 hours of undergraduate work as calculated by the Graduate School.
3. A minimum of 440 on both verbal and quantitative subtests of the GRE.
4. Must submit three letters of recommendation addressing the applicant's potential for success in the graduate program from persons knowledgeable of the applicant's abilities.

Applicants meeting all four of the criteria will be granted unconditional admission into the CRCJ Graduate Program. Applicants who lack one of the above criteria may be considered for probationary admission.

### Probationary Admission

Applicants who fail to meet the four criteria for unconditional admission may be considered for probationary admission. Applicants who fail to meet the GPA or GRE requirements for unconditional admission may be granted probationary admission if the GPA falls between 2.5 and 3.0 and the remainder of the application package is satisfactory. Applicants admitted on probation will remain in that status until completing 12 hours of graduate coursework with no grade lower than a B.

### Deferred Admission

In the event an applicant does not meet the minimum criteria established for unconditional or probationary admission, yet nonetheless is judged by the graduate advisor, in consultation with the CRCJ Graduate Studies Committee, to show promise, the admission decision may be deferred, with instructions provided to the student indicating the course of action to be taken prior to subsequent review. Admission decisions may also be deferred if the application package is incomplete.

### Provisional Admission

An applicant unable to supply all required documentation prior to the admission deadline, but who otherwise appears to meet admission requirements may be granted provisional admission.

### Denial

Applicants who do not satisfy all of the criteria for any of the above categories will be denied admission.

### Fellowships

Fellowships, when available, will be awarded on a competitive basis. Nominees for the Graduate School Master's Fellowship in the

criminology/criminal justice graduate program will be selected based on the following criteria:

- Candidates must be new students entering in the fall semester, with a minimum of 6 hours of enrollment in both long semesters to retain their fellowships.
- The minimum undergraduate GPA requirement is 3.00, as calculated by the Graduate School, plus a GPA of 3.0 for any graduate credit hours.
- Transcript of a completed bachelor's degree in criminology/criminal justice (or appropriate related field) from an accredited institution.
- Three letters of recommendation (may use the same letters submitted for consideration into the criminology/criminal justice graduate program).
- A written statement explaining the applicant's reasons for graduate study in criminology/criminal justice.

### Dual Degree Program

Students in criminology and criminal justice may participate in one of three dual degree programs whereby they can earn a Master of Arts in Criminology and Criminal Justice and 1) a Master of Science in Social Work, 2) a Master of Arts in Political Science, or 3) a Master of Public Administration. By participating in a dual degree program, students can apply a number of semester hours jointly to meet the requirements of both degrees, thus reducing the total number of hours which would be required to earn both degrees separately. The number of hours which may be jointly applied ranges from nine to 18 hours, subject to the approval of Graduate Advisors from both programs.

To participate in the dual degree program, students must be admitted to each program and must submit a separate Program of Work for each degree. Those interested in a dual degree program should consult the appropriate Graduate Advisor(s) for further information on course requirements. See also the statement on Dual Degree Programs in the general information section of this catalog.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Criminology and Criminal Justice (CRCJ)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5301. THE ADMINISTRATION OF JUSTICE (3-0).** Examination of administrative practices and procedures in criminal justice agencies/institutions. Emphasis on the administrative structure of various components of criminal justice system and on functioning and interrelationships of these units within the total criminal justice process. Students expected to select one area of administration for special study. Formerly CRJU 5315; credit will not be granted for both 5301 and 5315.

**5307. DEVIANT BEHAVIOR (3-0).** Examination of construct of deviance from historical and contemporary frames of reference. Attention is given both to diverse theoretical formulations and to applied aspects, particularly in dynamics of contemporary societal responses to deviancies including crime and delinquency.

**5309. RESEARCH AND STATISTICS IN CRIMINAL JUSTICE (3-0).** Examination of research methodology and statistical analysis. Special emphasis on methods and techniques for conducting research in criminal justice, including a review of problems encountered in sampling and survey research, field research, public policy implementation, and program evaluation.

**5318. CRIMINAL JUSTICE PERSONNEL ADMINISTRATION (3-0).** Personnel administration and management in criminal justice agencies and institutions; analyzes functions of recruitment, selection, hiring, placement, evaluation, dismissal, benefits systems, minority recruitment, training, education, promotion, career development, and retirement.

**5319. ADVANCED LAW ENFORCEMENT PRINCIPLES AND PRACTICE (3-0).** Analyzes the problems, practices, and philosophies of law enforcement in contemporary society. Students expected to give special attention to particular areas such as personnel selection, police-community relations, crisis intervention, patrol innovations.

**5327. JUDICIAL AND CONSTITUTIONAL PROCESSES (3-0).** Examination of the structure, functions, and operations of the courts, with special attention to contemporary constitutional issues and their impact on the criminal justice process.

**5332. CORRECTIONAL THEORY AND PRACTICE (3-0).** Examination of social, psychological, political, and historical bases of interventions in the control and disposition of offenders. Emphasis on contemporary policies, practices, and problems in institutional, semi-institutional, and community-based corrections.

**5350. THEORETICAL CRIMINOLOGY (3-0).** Explores the etiology of crime, theory development and crime causation. Emphasis is on theoretical perspectives and policy implementation.

**5366. JUVENILE DELINQUENCY AND JUVENILE CORRECTIONS (3-0).** Correctional modes are discussed and applied to juvenile offenders. Theoretic approaches to causation, modification, and control of delinquent behaviors are presented, and policy implications and limitations are discussed. Historical and contemporary perspectives and approaches are presented in the context of evolving and emerging practices and procedures.

**5370. PRACTICUM (3-0).** Professional or pre-professional experience in a criminal justice related agency or institution with the approval and direction of the student's supervising professor; intended for non-thesis option students who do not have professional experience related to criminal justice. Graded P/F/R.

**5380. CRIMINAL JUSTICE SEMINAR (3-0).** Synthesis course for advanced graduate students. Special emphasis on examination of constructs of crime/criminals, justice and systems. Requires individual research in area of particular concern to student. Graded P/F.

**5393. TOPICS IN CRIME AND CRIMINOLOGY (3-0).** May be repeated for credit as the topic changes.

**5394. TOPICS IN JUSTICE ISSUES (3-0).** May be repeated for credit as the topic changes.

**5396. CONFERENCE COURSE IN CRIMINAL JUSTICE (3-0).** Reading and research in a specialized area of criminal justice under the direction of a member of the graduate faculty. Graded P/F/R.

**5397, 5697. INTERNSHIP/INTERNSHIP REPORT.** Professional or pre-professional experience in relevant agency or institution with placement and work experiences approved and directed by student's supervising professor; intended for thesis-substitute students without related professional experience. Course credit requires writing internship report meeting standards of scholarship expected of traditional research theses. 5397 graded R/F only; 5697 graded P/F/R.

**5398, 5698. THESIS.** 5398 graded R/F only; 5698 graded P/F/R.

# Department of English

[www.uta.edu/english](http://www.uta.edu/english)

## Areas of Study and Degrees

English

M.A., Ph.D.

Humanities

M.A.

(See Program in Humanities)

## Master's Degree Plans

Thesis and Non-Thesis

### Chair

Wendy Faris

203 Carlisle, 817-272-2692

### Graduate Advisor

Timothy Morris

206 Carlisle, 817-272-2739

### Graduate Faculty

Professors

Cohen, Danahay, Estes,

Faris, Morris, L. Porter,

Roemer, Vitanza, Wood

### Associate Professors

Alaimo, Frank, Smith

### Assistant Professors

Gustafson, Matheson,

K. Porter, Stodnick

## Objectives

The Department of English offers a wide variety of graduate courses to meet the needs of students with a diversity of interests and academic backgrounds who wish to enhance their awareness of their literary and cultural environment by additional formal instruction or to increase their professional competence.

The Master of Arts program in English is designed to enable students to learn about, critique, and work in teaching, scholarship, writing, or other fields which value a strong background in language, rhetoric, and the study of culture through texts.

Early in the program each student takes one core course. It serves as an introduction to theory as it is currently used in English scholarship.

Each student plans an individual program of coursework, with the help of the Graduate Advisor and the chair of the student's thesis or exam committee. This program draws on the department's varied courses, which offer students ways to study literature, rhetoric, and criticism, as well as methods of studying culture through texts and traditions of discourse.

The M.A. in English provides a strong grounding in scholarly methods and in theory, making it an ideal preparation for doctoral study in disciplinary or interdisciplinary programs. M.A. graduates in English pursue careers in journalism, educational administration and services, publishing, and many business fields that demand writing and communication skills. The M.A. in English is also useful for prospective or experienced teachers who want both to sharpen their ability to teach literature and writing, and to advance professionally.

## Doctoral Program of Study

The doctoral program in English prepares students at the most advanced stage in the interpretation and composition of texts. The program emphasizes rigorous critical study in the fields of rhetoric, composition, critical theory, cultural studies, pedagogy and literary studies. Rather than offering separate tracks, the program allows the student—in consultation with the Graduate Advisor and the student's dissertation committees—to design a program of work that best suits their particularly scholarly interests and career goals. The combination of a diversity of course offerings, required and elected courses, and the requirement that each student define a focus that reflects his or her intellectual and career interests provides students with the flexibility to adapt to changes in English studies. Specifically, the English doctoral program prepares students for careers in writing, including electronic and technical writing, as well as in teaching in community colleges, small colleges or regional state universities. The department trains students for college-level teaching several ways, but most importantly, by offering graduate courses in the teaching of literature and the teaching of composition. Doctoral students in English present papers at scholarly conferences, publish essays in scholarly journals and participate in other professional activities.

## Writing Sample and Recommendations

In addition to the admission requirements set by the Graduate School, the English Department requires all international students to have speaking, reading, and writing competence in English and all applicants to submit to the Graduate Advisor a sample of their best academic writing. Three letters of recommendation should be sent directly to the Graduate Advisor. At least two of the letters of recommendation should be academic in nature.



## Admission Requirements

### Admission Procedures

For both the M.A. and the Ph.D., we consider four different admission criteria: 1) GPA; 2) GRE; 3) writing sample; and 4) letters of recommendation. Prospective students should submit all the required materials and scores—i.e. official transcripts, GRE scores, a writing sample, and recommendation letters—in order for their application to be processed. All criteria are considered together, in a holistic way. No single factor will eliminate a prospective student from consideration. For unconditional admission, candidates must meet the following standards for at least three of the four criteria.

### Criteria for Admission: Master's Program

1. A minimum GPA of 3.0 in undergraduate work, with a minimum of 3.4 in the English major or upper-level English courses.
2. GRE scores: a minimum of 500 verbal and, at least a 500 on the old analytical portion or at least a 4.5 on the new Analytical Writing measure. (We will not consider the math scores. We do not require the English subject test.)
3. A writing sample that demonstrates a sophisticated prose style and the ability to construct complex arguments.
4. Three letters of recommendation that attest to the prospective student's intellectual and scholarly potential. At least two of these should be from former professors.

### Criteria for Admission: Ph.D. Program

1. A minimum GPA of 3.5 in the student's M.A. in English or a very closely related field. (If the M.A. is not in English, we will consider the undergraduate GPA as well as that of the M.A. Moreover, if the M.A. is not in a very closely related field, the prospective student will be admitted to the M.A. program in English, not the Ph.D.)
2. GRE scores: GRE scores: a minimum of 500 verbal and, at least a 500 on the old analytical portion or at least a 4.5 on the new Analytical Writing measure. (We will not consider the math scores. We do not require the English subject test.)
3. A writing sample that demonstrates a sophisticated prose style, the ability to engage in intellectually rigorous modes of analysis, and a strong knowledge of rhetoric, composition studies, literary studies, cultural studies, or interdisciplinary critical theory.
4. Letters of recommendation that attest to the student's intellectual and scholarly potential. At least two of these must be from former professors; at least one must be a professor from the student's Master's program.

### Deferred Decision

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

### Provisional Admission

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

### Probationary Admission

For both the M.A. and the Ph.D., students may be admitted on probation under two different scenarios: 1) if the prospective student's application materials do not meet two of the four standards, but are

outstanding in the remaining two categories, or 2) if the prospective student's materials come extremely close to meeting the standards in at least three of the four areas. Students on academic probation must make no grade lower than a "B" in the first 12 hours of their graduate work in order to remain in the program.

### Denial

Admission will be denied if the application materials 1) do not meet the standards in three of the four categories; or 2) if the materials do not meet the standards in two of the categories, and in the remaining two categories meet the standards but in an unexceptional manner.

### Deficiency Courses

Students who wish to pursue the Master's degree but who do not have an undergraduate major in English will probably be required to take between 3 and 12 hours in specified advanced undergraduate courses and make no grade lower than a "B." These courses will not be counted for graduate credit, but instead will provide the necessary background for pursuit of the graduate degree.

### Fellowships

The same four criteria used to determine admission to the M.A. or Ph.D. programs will be considered when awarding graduate fellowships.

The Graduate School stipulates that: "Fellowships, when available, will be awarded on a competitive basis based on the following criteria: Candidates must be new students entering in the fall semester, with a minimum of 6 hours of enrollment in both long semesters to retain their fellowships. The minimum undergraduate GPA requirement is 3.00, as calculated by the Graduate School."

### Graduate Teaching Assistantships

Please consult Dr. Audrey Wick, the Director of First Year English, for more information on Graduate Teaching Assistantships.

## Degree Requirements

### Master of Arts

The Master of Arts degree in English has thesis and non-thesis options. Under either the thesis or the non-thesis option, 5300 "Theory and Practice in English Studies" is required. It must be taken within a student's first 12 hours of study. Enrollment requires the approval of the Graduate Advisor in English.

The thesis option is a 30 hour program and requires 24 hours of coursework (a three hour core course and 21 hours of electives) and at least six hours of thesis. The degree culminates with the defense of thesis. Students must apply for the thesis option during their 24th hour of coursework. A student who elects to write a thesis must select a topic in consultation with his/her thesis director. Before the student registers for thesis, a Thesis Committee (a director and two readers) must be established and the thesis prospectus must be approved by the Thesis Committee.

The non-thesis option requires a 36 hour program of coursework (a three hour core course and 33 hours of electives) and a comprehensive examination on coursework.

Under either thesis or non-thesis option, the coursework of the master's candidate must be approved in advance by the Graduate Advisor, who should be consulted on all problems related to the student's program. New students must consult with the Graduate

Advisor to obtain additional program requirements and a copy of the English Graduate Student Handbook. Regular counseling sessions will be scheduled each year. Notification of specific time and place will be sent to all students who have been accepted into the graduate program.

Graduate standing is prerequisite for the courses listed below. Courses so designated may be repeated for credit as often as their subject matter changes. The titles are general descriptions. Students should consult the Department of English each semester for more specific information about the individual offerings.

## Doctor of Philosophy

Thirty semester hours of coursework beyond the M.A., followed by a minimum of 9 hours of dissertation work (ENGL 6999), are required. All students are required to take ENGL 5300: Theory and Practice during their first semester unless they have already taken 5300 while in the M.A. program and received a grade of B or higher. All students are also required to take 5311: Foundation of Rhetoric OR 5359: Argumentation Theory as early in their programs as possible.

Students must consult with the Graduate Advisor and the chair of their dissertation committee to carefully construct a coherent focus for their coursework and comprehensive examinations. Students are allowed to take 9 hours of coursework outside the English department. During the first year of coursework all students must pass English 5300 with a grade of B or higher in order to remain in the program. After a student completes the first year of coursework, the Graduate Advisor, in consultation with the graduate faculty, will determine whether the student has demonstrated the potential to successfully complete the program and, consequently, whether the student will be allowed to continue in the program.

The Ph.D. track in English requires basic proficiency in translation in one natural language other than English. The language must relate to the student's dissertation research and career goals. Some committees may require an additional language, depending on the student's area of specialization. After completing coursework and satisfying the foreign language requirement, the student will take a written comprehensive examination. While studying for the comprehensive exams, students may enroll in English 6391: Graduate Readings, supervised reading for the Ph.D. exam, graded R. By the end of the first semester after successfully completing the comprehensive examinations, the students must submit a dissertation prospectus to their committee. The dissertation must be an original, substantial and significant contribution to a scholarly field. Students should work closely with the chair of their committee while researching and writing their dissertation. While researching and writing their dissertation, students must enroll in dissertation hours (ENGL 6399, 6699 or 6999). In the final semester of dissertation work, students must enroll in ENGL 6999. Once the student, the chair of the committee, and the primary readers agree that the dissertation is sufficiently completed, the student may schedule the defense. The student must furnish each committee member with a copy of the dissertation, including notes and bibliography, at least three weeks prior to the defense date. The defense of the dissertation is oral. The defense is open to all members of the faculty, graduate students and invited guests of the university community. Questioning of the candidate will be directed by the student's dissertation supervising committee, but any person attending the defense may participate. Committee members may request that the dissertation be further revised and may withhold final approval of the dissertation until the revisions have been made. For more specific information regarding degree requirements, please consult the Graduate Handbook of the Department of English.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## English (ENGL)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

### General

#### 5300. THEORY AND PRACTICE IN ENGLISH STUDIES (3-0).

Core graduate course, introduction to graduate study in English. Covers a wide range of methodological and theoretical approaches to, as well as current issues in, criticism, rhetoric, and literary studies. Enrollment requires the approval of the Graduate Advisor in English.

5331. TOPICS IN LANGUAGE STUDY (3-0). Concentration on historical and theoretical approaches to the English language; may include Old and Middle English, the history of the English language, linguistic theory and World English. May be repeated for credit when content changes.

5337. SEMINAR IN TEACHING LITERATURE (3-0). Study of recent scholarship in English Studies and other disciplines pertaining to the teaching of literature. Comparative analysis of methods and objectives for the teaching of literature. Course will include a practicum component in which students observe the teaching of experienced faculty, teach particular texts, design syllabi and write statements of teaching philosophy. The course is intended to prepare graduate students to teach literature courses at the university, college or community college level, and to provide a range of pedagogical models to enhance the skills of secondary school teachers.

5391. INDEPENDENT STUDY (3-0). Supervised independent study at the M.A. or Ph.D. level. Prerequisite: permission of instructor. Graded A, B, C, D, F, or X.

5398, 5698. THESIS. The graduate student must be registered for this course (a) when in consultation over the thesis with the supervisory committee, and (b) in the semester or term in which the Master of Arts degree will be conferred. Prerequisite: permission of Graduate Advisor in English at least 30 days before enrolling. 5398 graded R/F only; 5698 graded P/F/R.

6191. INDEPENDENT STUDY (1-0). Independent study at the M.A. or Ph.D. level. May be repeated as needed. Prerequisite: permission of instructor. Graded P, F, W.

6391. GRADUATE READINGS (3-0). Supervised reading for the Ph.D. exam. Prerequisite: permission of instructor and Graduate Advisor. Graded R.

**6399, 6699, 6999. DISSERTATION.** The graduate student must be registered for this course (a) when in consultation over the dissertation with the supervisory committee, and (b) in the semester or term in which the Ph.D. will be conferred. A minimum of 9 hours of dissertation credit is required for the Ph.D. Graduate teaching assistants must take 6699. 6999 must be taken during the final semester of the Ph.D.

## American Literature

**5320. SELECTED READINGS IN AMERICAN LITERATURE BEFORE 1800 (3-0).** Designed to establish the diversity of our early literature. Includes Indian oral literature, travel accounts, Puritan writing, diaries, autobiography, poetry, drama and fiction. Cultural context stressed.

**5322. 19TH CENTURY AMERICAN LITERATURE (3-0).** Examines significant authors, forms, and aesthetic movements within literary, historical, and cultural contexts. Writers examined may include established figures associated with traditionally recognized forms, movements, and eras, such as Romanticism, the domestic novel, the American Literary Renaissance, slave narratives, Realism, and Naturalism, as well as non-canonical authors and less-recognized forms and movements.

**5323. AMERICAN LITERATURE SINCE 1900 (3-0).** Includes representative works of multiple authors selected for the study of modern and contemporary themes and methods.

**5324. TOPICS IN AMERICAN LITERARY GENRES (3-0).** Concentrates on the nature and aesthetic-cultural significance of one literary genre. Genres examined may include, but are not limited to, poetry, drama, fiction, autobiography, travel literature, and oral narratives. May be repeated when content changes.

**5326. TOPICS IN AMERICAN LITERATURE BEFORE 1900 (3-0).** May focus on one to three writers such as Melville, Hawthorne, or Emerson, or a significant theme or movement such as the rise of Realism, the representation of women, or women's fiction. May be repeated when content changes.

**5327. TOPICS IN 20TH CENTURY AMERICAN LITERATURE (3-0).** May focus on one to three writers such as Faulkner, O'Neill, or Morrison, or a significant theme or movement such as Modernism and Postmodernism, multicultural narrative, or feminist theory/feminist fiction.

**6339. TOPICS IN AMERICAN LITERATURE (3-0).** Themes or issues not bound by particular historical periods, for example, women writers, canon formation, American Indian literature, African-American literature, utopian literature, cultural studies. May be repeated when content changes.

## British Literature

**5301. MEDIEVAL ENGLISH LITERATURE (3-0).** English literature of the period before 1500. May include Old English poetry, Anglo-Latin prose, William Langland, the alliterative revival, romances, Malory, and Chaucer.

**5302. 16TH CENTURY BRITISH LITERATURE (3-0).** Non-dramatic literature of the 16th century, including works by Thomas More, Sir Philip Sidney, Sir Walter Raleigh, John Skelton, Edmund Spenser, and Elizabeth I.

**5303. 17TH CENTURY ENGLISH LITERATURE (3-0).** Poetry and prose of the 17th Century. May include a study of Milton and/or a study of writers and motifs of the period.

**5304. RESTORATION AND 18TH CENTURY BRITISH LITERATURE (3-0).** Drama, poetry, fiction, and essays from 1660 to

1798. Includes writers such as John Dryden, Aphra Behn, Alexander Pope, Samuel Johnson, Henry Mackenzie, Ignatio Sancho, and Maria Edgeworth as well as issues of the period such as the nature of reason.

**5305. ROMANTIC BRITISH LITERATURE (3-0).** Poetry and fiction from 1798 to 1837. Includes writers such as William and Dorothy Wordsworth, Mary and Percy Shelley, Felicia Hemans, and Walter Scott as well as issues such as the meaning of nature.

**5306. VICTORIAN ENGLISH LITERATURE (3-0).** Concepts and problems in texts by Victorian novelists, poets, and essayists (writers will vary). Attention to historical and cultural as well as literary issues.

**5307. 19TH-CENTURY BRITISH LITERATURE AND CULTURE (3-0).** An overview of the writings and culture of the long 19th century in Britain from 1798 to 1914. Makes connections between Romantic and Victorian periods, covers literary and other relations with the empire, and includes significant non-literary figures such as Darwin and Freud.

**5308. SHAKESPEARE (3-0).** Representative works of Shakespeare. May vary from comprehensive readings in the dramatic literature to intensive examination of certain plays, or to other related topics.

**5313. 20TH-CENTURY BRITISH LITERATURE (3-0).** A study of English and Irish writing in the 20th Century; may focus on major authors, themes, or topics.

**6330. GENRE STUDIES IN BRITISH LITERATURE (3-0).** Intensive study of a genre in any period(s) of British Literature; may focus on autobiography, history of the novel, Restoration and eighteenth-century drama, nineteenth-century British fiction, or other. May be repeated when course content changes.

**6335. TOPICS IN ENGLISH LITERATURE (3-0).** Focus on writers or issues in literature written in English, including colonial and postcolonial literatures. May include poetry, drama, fiction, or non-fiction. May be repeated when content changes.

## Comparative Literature

**6329. TOPICS AND THEMES IN COMPARATIVE LITERATURE (3-0).** The study of a theme or topic, such as primitivism, utopianism, representations of the unconscious, or the quest, within different literary traditions. May be repeated as content changes.

**6332. PERIODS AND MOVEMENTS IN COMPARATIVE LITERATURE (3-0).** The study of particular time periods such as the Renaissance or the 19th century, or of literary and cultural movements such as realism, Surrealism, Romanticism, or Modernism, across different literatures. May be repeated as course content changes.

**6333. GENRES IN COMPARATIVE LITERATURE (3-0).** Theory of literary forms or types and the conventions they embody. May focus on the epic, the novel, lyric poetry, autobiography, drama, or magical realism, across different literary traditions. May be repeated as course content changes.

## Criticism

**5330. TOPICS IN CRITICISM (3-0).** Studies in critical topics such as textual criticism, psychoanalytic criticism, philosophy and criticism, Renaissance poetics and literature, critical movements, or focus on a major theorist in criticism. May be repeated when content changes.

**5340. CRITICAL THEORY: THE MAJOR TRADITIONAL TEXTS (3-0).** A study of literary and cultural theory and practice from the Greco-Roman period to the early 20th Century. May include such theorists as Plato, Aristotle, Horace, Longinus, Dante, Sidney, B. Jonson, Dryden, Pope, Johnson, Coleridge, Arnold, Richards, Eliot, and others.

**5360. CONTEMPORARY CRITICAL THEORY (3-0).** Study of contemporary theories of interpretation, concentrating on one or more schools of critical and cultural theory; may include, e.g., New Criticism,

the Neo-Aristotelians, Marxist Critical Theory, hermeneutics, psychoanalysis, Russian Formalism, semiotics, speech-act theory, phenomenology, structuralism, and post-structuralism. May be repeated when content changes.

**5380. TEXTUAL THEORIES OF CULTURE (3-0).** Study of the interpretations of culture yielded by the traditions of semiotics and hermeneutics and cultural studies; may include works by the following: Lyotard, Foucault, Habermas, Derrida, Pierce, Barthes, Deleuze, Gadamer, Lévi-Strauss, Butler, Haraway, and Hall.

**6340. METACRITICAL THEORY (3-0).** A study of theories of literature from the point of view of their systems-theoretical character. Focuses on the writing of selected metatheorists such as Barbour, Braithwaite, Bruss, Harr, Lakotos, Popper, Rescher, and others, on questions of the genesis, nature, function, validity, and potential of literature theory.

**6360. TOPICS IN FEMINIST CRITICISM (3-0).** Study of interdisciplinary feminist theories of language, power, knowledge, and culture. Course may focus on Marxist feminism, postmodern feminism, feminist cultural studies, or other topics. Course may include such theorists as Wollstonecraft, Woolf, Beauvoir, Irigaray, Spillers, Anzaldúa, Haraway, Butler, or Cornell.

## Rhetoric/Composition

**5311. FOUNDATIONS OF RHETORIC AND COMPOSITION (3-0).** Required of those in the Rhetoric Track. Historical, theoretical, and pedagogical issues in rhetoric and composition, with emphasis on rhetoric and philosophy in conflict in respect to ethos, pathos, and logos; rhetoric and composition as architectonic productive arts for the disciplines; oral, literate, and electronic "rhetorics;" rhetoric as inquiry and as epistemic. Emphasis on library and bibliographical resources as they are brought to bear on those issues. Enrollment requires the approval of the Graduate Advisor in English.

**5350. HISTORY OF RHETORIC I: CLASSICAL RHETORIC (3-0).** A study of the theory and practice of Greco-Roman rhetoric from its pre-Socratic origins to the Second Sophistic. Attention will be given to major theorists, such as Gorgias, Protagoras, Plato, Aristotle, Isocrates, Hermagoras, Hermongenes, Cicero, Quintilian and the transitional figure of St. Augustine.

**5351. HISTORY OF RHETORIC II: MEDIEVAL AND RENAISSANCE RHETORIC (3-0).** A study of the theory and practice of western rhetoric from the early medieval period through the Renaissance. Attention will be given to major theorists, such as St. Augustine, Geoffrey of Vinsaug, Robert of Basevorn, Christine de Pizan, Desiderius Erasmus, Baldesar Castiglione, Juan Luis Vives, Sir Philip Sidney, Peter Ramus and Francis Bacon.

**5352. HISTORY OF RHETORIC III: MODERN AND CONTEMPORARY RHETORIC (3-0).** A study of the theory and practice of western rhetoric from the 18th century to the present. Attention will be given to major theorists, such as Whatley, Blair, Bain, Campbell, Spencer, Richards, Burke, Weaver, Toulmin, Perelman, Bitzer, Vatz, Harriman, Leff, Farrell, McGee, Gaonkar, Kinneavy, Scott, Crosswhite, Meyer, Gross, Miller, Fuller and Kent.

**5353. PRINCIPLES AND THEORIES OF RHETORICAL INVENTION (3-0).** Examination of the art, method, and theory of rhetorical invention, with special attention given to its historical development, from the classical *topoi* and doctrine of *stasis* to more contemporary approaches; assignments include the use of such methods.

**5354. ENGLISH LINGUISTICS (3-0).** Introduction to the analysis of grammatical structures in English, concentrating on the goals and methods of contemporary analysts operating according to a variety of

current theories, including structuralism, tagmemics, transformationalism, and discourse grammar.

**5355. STUDIES IN ENGLISH DISCOURSE (3-0).** Analysis of English grammatical structures above the level of the clause, including the sentence, the paragraph, and the whole text; examination of the work of major discourse theorists—Dik, Harris, Halliday, Longacre, Pike and van Dijk.

**5356. RHETORIC OF COMPOSING (3-0).** Study of research into the composing process and of the available methods of conducting research; special attention given to such researchers as Emig, Britton, Flower and Hayes, Scardamalia, Bereiter, and Perl; intensive self-analysis of the student's own composing process.

**5357. RHETORIC OF READING (3-0).** Study of the phenomenology of reading, focusing on the literature about and research into the reading process; attention given to aesthetic response to literary texts and the relationship between reading and composing; special attention given to Iser, Kintsch, de Man, van Dijk, Barthes, Schank, Ingarden, Holland, Derrida, and others; intensive self-analysis of the reading process.

**5358. PRINCIPLES AND METHODS OF EVALUATION (3-0).** Study of the available means of evaluating writing; special attention given to evaluating individual student-writing in and out of conferences and to evaluating large groups of student-writers, with such methods as holistic and primary-trait scoring; may include peer and curriculum evaluation; evaluation of student papers.

**5359. ARGUMENTATION THEORY (3-0).** Emphasis on theories of argumentation and persuasion that further the rhetorical aims of convincing or achieving agreement through identification and consensus. Attention to classical and contemporary approaches to issue analysis, invention, audience analysis, building common ground, *stasis* theory, types of proofs and tests of validity, organizational strategies, and style. Special attention to argument on the Internet. Assignments may include constructing Web sites related to argument. Study of such theorists as Aristotle, Perelman, Toulmin, Ong, K. Burke, Brockreide and Ehninger, Bitzer, Young, Becker and Pike and others.

**5370. SCHOLARLY ARGUMENT (3-0).** An introduction to the research for the writing of argumentative scholarly essays. Surveys research skills, materials, forms of scholarly argument, and involves the writing of a research-based essay.

**5389. TOPICS IN TEACHING COMPOSITION (3-0).** Seminar for investigating problems of and approaches to teaching composition. Special attention given to current compositional theorists. May be repeated when content changes.

**6334. TOPICS IN STYLISTICS (3-0).** A study of the stylistic features of discourse. Attention may be given to the development of English prose style, to metrical and prosodic theory, to linguistic rhetorical-computational-affective approaches as well as newer methods such as narratology and phenomenological analysis. Assignments include the extensive analysis of texts. May be repeated when content changes.

**6350. TOPICS IN THE HISTORY OF RHETORIC (3-0).** An intensive study of specific problems or issues in classical, medieval, Renaissance, modern or contemporary rhetoric, especially those that involve the connections and collisions between rhetoric and other intellectual traditions (e.g., critical theory, cultural studies, feminist theory, history, literary studies, non-western rhetoric, philosophy, etc.) May be repeated for credit when content changes.

**6352. TOPICS IN MAJOR FIGURES IN MODERN RHETORICAL THEORY (3-0).** Intensive study of one or more modern theorists whose interests can be interpreted as rhetorical, e.g., Burke, Weaver, Richards, Perelman, Booth, Cassirer, Ricoeur, and Derrida. May be repeated when content changes.

## Objectives

Graduate study in history seeks not only to train students in historical methods and analysis but also to nurture in them a sense of the excitement and relevance of studying the past. Exploring the historical diversity of human experience broadens and deepens our understanding of both the past and the contemporary world. Students who complete graduate studies in history pursue careers in teaching, research and archival or museum administration, as well as in government and business.

The Master's Degree Program offers students graduate history training in either U.S. history or the history of Europe, Africa and Latin America. In the flexible Master's degree curriculum, apart from two required courses early in the program, students tailor their course of study to meet individual interests and career objectives. Students choose either Thesis or Non-Thesis programs. Coursework and internships in Archival Administration certification and/or Public History are also available as part of the Master's degree program.

The Doctoral Degree Program in Transatlantic History offers students comparative study of the historical development of peoples on the continents bordering the Atlantic Ocean. This exciting Ph.D. program is part of recent developments within the discipline of history that broaden the study of the past, transcend national histories, and contribute to a new transnational and comparative perspective. Utilizing specific research resources in the UTA Libraries, the Ph.D. program in Transatlantic History (1492 to the present) offers a structured and focused curriculum of both required and elective courses. Prerequisite: B.A. or M.A. degree in history.

## Admission Standards

In compliance with HB 1641, the History Department does not assign a specific weight to any one factor being considered, and does not use standardized tests (i.e., the GRE) in the admissions or competitive fellowship or scholarship process as the sole criterion for consideration or as the primary criterion to end consideration of an applicant to either the M.A. or Ph.D. program. However, the GRE is required and used as a criterion, without specific weight, in the Department's evaluation of candidates for admission to programs at each of three levels: Unconditional, Provisional, and Probationary Admission.

The Department wishes to be as thorough and fair as possible in evaluating applicants for admission. It recognizes that some applicants may appear to be stronger according to some criteria than according to other criteria. When an applicant does not completely meet the minimum expectations for Unconditional Admission, the Department may consider the applicant for possible Provisional or Probationary Admission. When the applicant is not granted any of the three levels of admission, the decision may be deferred or the application is denied. We do not wish to exclude a qualified and potentially successful candidate who perhaps has approached but not met all the criteria completely. However, we do not wish to admit candidates who, based on the criteria, are deemed to have a poor chance of successfully completing the graduate program.

## Department of History

[www.uta.edu/history](http://www.uta.edu/history)

**Areas of Study and Degrees**  
History  
M.A., Ph.D.

**Archival Administration**  
*Certificate*

**Master's Degree Plans**  
Thesis and Non-Thesis

**Doctoral Degree Plan**  
Dissertation

**Chair**  
Donald G. Kyle  
202 University Hall, 817-272-2861

**Graduate Advisors**  
Stephen Maizlish (M.A. Program)  
Robert B. Fairbanks (Ph.D. Program)  
201 University Hall, 817-272-2861  
Fax: 817-272-2852  
E-mail: [history@uta.edu](mailto:history@uta.edu)

**Graduate Faculty  
Professors**  
Buisseret, Fairbanks,  
Francaviglia, Green, Kyle,  
Palmer, Philp, Reinhartz,  
Richmond, Rodnitzky

**Associate Professors**  
Anders, Cawthon,  
Cole, Goldberg, Haynes,  
Jalloh, Maizlish, Morris,  
Narrett, Reinhardt

**Assistant Professors**  
Adam, Hobbins,  
Ramsey, Treviño

**Adjunct Professor**  
Saxon

**Professor Emeritus**  
Lackner

## M.A. Program

### Unconditional Admission

The criteria for admission below are used, without specific weights, as positive indicators of potential success in the program. All four criteria for unconditional admission must be met in order to receive unconditional admission.

- Undergraduate GPA of 3.0 (as calculated by the Graduate School) in the last 60 credit hours in the course of completing a B.A. degree in History (or an appropriate other field) from an accredited institution (verified by official transcripts from each college or university previously attended sent directly from the registrar of that institution to Graduate Admissions).
- A written statement (500 words) explaining the applicant's reasons for graduate study in History.
- Three letters of recommendation (from faculty if possible) mailed directly from the recommenders to the History Graduate Advisor.
- A minimum score of 500 on the verbal section and a minimum score of 4 on the analytical writing section of the GRE aptitude test (verified by official GRE scores sent to Graduate Admissions).

### Provisional Admission

An applicant unable to supply all required documentation (e.g. GRE scores have not yet arrived) prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission. Provisionally admitted students must adequately satisfy any incomplete documentation by the end of the semester in which they are admitted. If the applicant fails to do so, the Department may then reclassify the applicant as Probationary, defer the decision, or ask the candidate to leave the program.

### Probationary Admission

An applicant whose performance, according to the criteria, approximates but does not meet minimum admission standards may be granted Probationary Admission subject to one or both of the following conditions:

- a) The candidate must earn no grade lower than a B in his/her first 12 semester hours of graduate work taken at UTA.
- b) Candidates without adequate appropriate preparation in the discipline of History may be required to complete a certain number of "leveling" courses (i.e. make-up coursework) while in the program.

### Deferral or Denial

If two or more of the criteria have not been met satisfactorily, the applicant will not be admitted on any of the three levels above but will receive deferral or denial. A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

### M.A. Fellowship Standards

Fellowships, when available, will be awarded on a competitive basis. Nominees for the Graduate School Master's Fellowship in History will be selected based on the following criteria:

- Candidates must be new students entering in the fall semester, with a minimum of 6 hours of enrollment in both long semesters to retain their fellowships.
- The minimum undergraduate GPA requirement is 3.0, as calculated by the Graduate School, plus a GPA of 3.0 for any graduate credit hours.

- Transcript of a completed bachelor's degree in History (or appropriate related field) from an accredited institution.
- Three letters of recommendation (from faculty if possible).
- A written statement (500 words) explaining the applicant's reasons for graduate study in History.

## Ph.D. Program

### Unconditional Admission

The criteria for admission below are used, without specific weight, as positive indicators of potential success in the program. All criteria must be met in order to receive consideration for unconditional admission.

- A prior academic degree (either B.A. or M.A.) in History from an accredited institution (verified by transcripts from each college or university previously attended sent directly from the registrar of that institution to Graduate Admissions). If the prospective candidate has no prior degree in History, the doctoral advisor will refer the applicant to the advisor of U.T. Arlington's M.A. program in History.
- A graduate GPA of 3.5 (as calculated by the Graduate School) in the course of completing an M.A. degree in History or an appropriate other field from an accredited institution (verified by official transcripts from each college or university previously attended sent directly from the registrar of that institution to Graduate Admissions).
- An academic writing sample (e.g. research essay, thesis chapter) from a previous course assignment.
- Three letters of recommendation (from faculty if possible) mailed directly from the recommenders to the History Ph.D. Advisor.
- A minimum combined score of 550 on the verbal section and a minimum score of 5 on the analytical writing section of the GRE aptitude test (verified by official GRE scores sent to Graduate Admissions).

### Provisional Admission

An applicant unable to supply all required documentation (e.g., GRE scores) prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission. Provisionally admitted students must adequately satisfy any incomplete documentation by the end of the semester in which they are admitted. If the applicant fails to do so, the Department may then reclassify the applicant as Probationary, defer the decision, or ask the candidate to leave the program.

### Probationary Admission

An applicant whose credentials approximate but do not meet minimum admission standards, may be granted Probationary Admission subject to the condition that the candidate must earn no grade lower than a B in his/her first 12 semester hours of graduate work taken at UTA.

### Deferral or Denial

If two or more of the criteria have not been met satisfactorily, the applicant will not be admitted on any of the three levels above but will receive deferral or denial. A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

### Application Deadline

The Ph.D. admissions committee will begin its evaluation of completed applications on March 1 and will continue to meet periodically until the Graduate School deadline of June 15. Decisions concerning fellowships and assistantships will be made beginning March 1 and will continue thereafter depending on availability.

### Ph.D. Fellowship Standards

Fellowships, when available, will be awarded on a competitive basis. The criteria for Liberal Arts Special (Transatlantic) Doctoral Fellowships in History are:

- Candidates must be new students entering in the fall semester, with a minimum of 6 hours of enrollment in both long semesters to retain their fellowships.
- Graduate GPA of 3.5 (as calculated by the Graduate School) in the course of completing an M.A. degree in History (or an appropriate other field) from an accredited institution, plus a GPA of 3.0 in any additional graduate hours.
- Three letters of recommendation (from faculty if possible)
- An academic writing sample (e.g. research essay, thesis chapter) from a previous course assignment.

## M.A. Degree Requirements

Courses taken toward a master's degree should fit into a unified program aimed at providing students with both a comprehensive background and a depth of understanding in a major field in either U.S. History or the History of Europe, Africa and Latin America. All students are required to take HIST 5339 Historical Theory and Methodology and the Issues & Interpretations course corresponding to their major field (either HIST 5340 or 5341). All students must take a minimum of six hours in both the Colloquium and the Seminar courses. Master's students are eligible to take courses at the 6000 level as well as 5000 level, subject to any particular course prerequisites. Students must consult with the Graduate Advisor to determine their program.

Competency in one foreign language is required to obtain the Master's degree. This may be demonstrated by four semesters of credit in an approved language or by successful completion of an examination administered by the Department of Foreign Languages or by the History Department.

The Thesis degree plan is designed for students who wish to research and write a substantial, original work on a historical topic of personal interest. The plan requires completion of 30 credit hours (24 hours of coursework, plus 6 hours of thesis preparation). With the approval of the Graduate Advisor, thesis students may have a minor of as many as six hours of graduate and/or advanced undergraduate courses in a discipline other than history. A maximum of six hours of advanced undergraduate history coursework may be taken for graduate credit. Thesis candidates should consult with the Graduate Advisor to form their thesis faculty committee, which consists of one supervising professor and two other professors.

The Non-Thesis degree plan requires completion of 36 credit hours of coursework. In the final semester, the non-thesis students are required to take HIST 5395, a course that prepares them for the written and oral comprehensive examination. With the approval of the Graduate Advisor, non-thesis students may have a minor of as many as nine hours of graduate and/or advanced undergraduate courses in a discipline other than history. A maximum of nine hours of advanced

undergraduate coursework may be taken for graduate credit. A comprehensive examination (written and oral), over specific areas of concentration within the major field, is required for the degree; these areas will be defined by students in consultation with the Graduate Advisor and their non-thesis faculty committee, which consists of one supervising professor and two other professors.

## Archival Administration and Public History

These studies involve application of historical knowledge and methodology in non-academic settings such as private businesses or public historical agencies (e.g., archives, museums, preservation societies).

Students desiring a certificate of **archival administration** as part of the Master of Arts in History degree must take HIST 5339 and HIST 5340 or HIST 5341 and HIST 5395, and enroll in 15 hours of other courses in either U.S. history or the history of Europe, Africa and Latin America. In addition, they must take HIST 5342 and HIST 5343, plus an additional six hours of internship, HIST 5644. Students already holding a M.A. or Ph.D. degree in history or a related field, as well as students enrolled in graduate programs other than history, who desire only a certificate in archival administration should consult the Graduate Advisor.

Students desiring **public history** as an area of study as part of the Master of Arts in History degree must take HIST 5339, HIST 5340 or HIST 5341, and HIST 5395, and also enroll in 9 hours of content courses in either U.S. history or the history of Europe, Africa and Latin America. At least 3 hours must be in both colloquium and seminar courses. In addition, students must take the following required 12 hours — HIST 5342, HIST 5343, HIST 5345, and HIST 5348, plus an additional six hours of internship (HIST 5644). Students electing to complete an internship in archival management will also earn the certificate in archival administration (see above).

Students interested in either archival administration or public history as an area of study are encouraged to consult the Graduate Advisor to discuss a program of work.

## Master of Education in Teaching (M.Ed.T.)

History may be chosen as an appropriate academic specialization or teaching field for students enrolled in the Master of Education in Teaching Degree Program. The History Department offers courses that qualify as an academic area or teaching field for elementary and secondary teachers. HIST 5340 and/or HIST 5341 are especially recommended for students in the M.Ed.T. program, and for others who wish to broaden their historical knowledge for classroom teaching. See Master of Education in Teaching Degree Program.

## Ph.D. Degree Requirements

The doctoral program consists of 39 credit hours: 30 hours of coursework and 9 hours of dissertation. A total of 18 hours of the 30-hour total of coursework is on required methodological and transatlantic subjects. Of the remaining 12 hours of elective coursework, a minimum of 3 hours and a maximum of 6 hours are to be taken in a department other than history.

The Ph.D. Program in Transatlantic History has as its goal the solid grounding of graduate students in the history of the development, contact, and interaction between peoples of the continents bordering on the Atlantic Ocean. In order to achieve this goal of the comparative study of the interrelations of Europe, Africa, and the Americas, North and South, students enroll in a sequenced curriculum that offers coursework in discovery, exploration, and the history of cartography; and migrations, colonization, and comparative frontiers. Readings (colloquium) courses in specific areas are followed by research (seminar) courses in that area. Certain doctoral courses—HIST 6301, 6302, 6321, 6322—may be repeated for credit when the instructor or subject changes.

During the *first semester* (Fall of Year I), students take three required courses. HIST 5339, Historical Theory and Methodology, trains students in basic research techniques, theories, and methodologies. HIST 6338, Issues in Transatlantic History, introduces key concepts and important issues in Transatlantic History from 1492 to the present. A third course, HIST 6301, is a colloquium on Transatlantic Exploration, Discovery and the History of Cartography. This course allows students to study in more depth subjects encountered in the overview course, HIST 6338.

(Students who hold the M.A. degree from UTA, and who have already taken HIST 5339 as part of that program's requirements, should take an elective course in place of repeating this course.)

During their *second semester* (Spring of Year I), students take two required courses and one elective course. The two required courses are HIST 6302 and 6321. The colloquium course, HIST 6302, Transatlantic Migrations, Colonization, and Comparative Frontiers, enables students to focus more specifically in these subject areas, which were introduced earlier in HIST 6338. In the other required course, HIST 6321, Seminar on Transatlantic Exploration, Discovery, and the History of Cartography, students conduct primary source research on subjects studied in HIST 6301, which students will have taken in the previous semester. The third course during this semester is the student's first elective course. (On *Electives*, see below.)

The availability of Summer courses may affect the students' remaining schedules.

During their *third semester* (usually Fall of Year II), students take one required course and two electives. The required course is HIST 6322, Seminar in Transatlantic Migrations, Colonization and Comparative Frontiers, a course in which students conduct primary source research in areas previously studied in HIST 6302. In addition, students enroll in two electives (see *Electives*).

During their *fourth semester* (usually Spring of Year II), students take one final elective course. Students may also enroll in an individual study course (HIST 6391 or 6691) that prepares them for the Comprehensive Examination (see *Comprehensive Examination*). Students are required to pass this examination before proceeding to the dissertation.

## Electives

Students are reminded of the requirement of 3 hours minimum and 6 hours maximum of elective courses to be taken in a department(s) other than history. These 3-6 hours may be taken in any semester beyond the Fall of Year I. Since, overall, the Transatlantic History doctoral program requires a total of 12 hours of electives, the student enrolls in either 3 hours in non-history department courses and 9 hours in history courses, or 6 hours in non-history courses and 6 hours in history courses. The student may enroll in either 5000 or 6000 level history courses as electives.

Elective courses in the Transatlantic History Ph.D. program are defined as either *inside electives*, non-required history department courses, or *outside electives*, courses in a department other than history. With the approval of the Graduate Advisor, students may select outside electives from any graduate course in the departments of English, Foreign Languages, Political Science, and Sociology/Anthropology. A course or courses in *another* department must have the approval of the Graduate Advisor. *Special note on inside electives:* All 5000 and 6000 level history courses—except HIST 5339—may be repeated for credit when the subject or instructor changes.

It is understood that both outside and inside electives should be courses that will contribute to the transatlantic focus of the student's body of work.

## Foreign Language

All history Ph.D. students must fulfill the basic requirement of demonstrating a reading knowledge of at least one transatlantic foreign language, to be determined by: four semesters of credit in a single foreign language (grade B average), a standardized equivalency test (such as the CLEP exam), passing MODL 5301 (Modern Languages for Graduate Reading), or a translation exam administered by a faculty member on campus. This language requirement must be met before the student takes the Comprehensive Examination.

*Important note:* For the student at the dissertation stage, the candidate's faculty committee may designate a requirement of competence in an additional foreign language(s) if that language is judged essential for the student's area of dissertation research.

## Comprehensive Examination

Students are eligible to take this exam when they have fulfilled three requirements: (1) satisfactorily completed all or most of their 30 hours of coursework, (2) formed a five-person faculty committee with a minimum of three UTA History Graduate Faculty and filed an Application for Candidacy and Final Program of Work, and (3) completed the basic single foreign language requirement. The Comprehensive Examination is a written and oral examination that takes place over four days and covers three history subject areas. Most students take the Comprehensive Examination in their final semester of coursework, or shortly thereafter.

## Dissertation

The final stage in the student's progression to the doctoral degree in history is the dissertation. With the advice of the Graduate Advisor, students work with their supervising professor and faculty committee to complete and file a Dissertation Prospectus.

The dissertation itself must be on a transatlantic subject approved by the Graduate Advisor and the student's faculty committee. The dissertation must be the product of original research based on the critical examination and evaluation of primary sources as well as appropriate secondary materials and interpretations. After completion of the dissertation, students will defend their work in an oral examination.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X.



To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## History (HIST)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5301. COLLOQUIUM IN 19TH CENTURY AMERICAN HISTORY (3-0).** An examination of the historical literature and issues in 19th Century American history. The specific literature and issues examined will vary with the instructor.

**5302. COLLOQUIUM IN 20TH CENTURY AMERICAN HISTORY (3-0).** An examination of the historical literature and issues in 20th Century American history. The specific literature and issues examined will vary with the instructor.

**5304. COLLOQUIUM IN REGIONAL/TOPICAL HISTORY OF THE U.S. (3-0).** An examination of the historical literature and issues pertaining to a region or a major topic in the history of the U.S. The specific literature and issues examined will vary with the instructor.

**5310. COLLOQUIUM IN ANCIENT AND MEDIEVAL HISTORY (3-0).** An examination of the historical literature and issues in ancient and medieval history. The specific literature and issues examined will vary with the instructor.

**5311. COLLOQUIUM IN EARLY MODERN EUROPEAN HISTORY (3-0).** An examination of the historical literature and issues in early modern European history. The specific literature and issues examined will vary with the instructor.

**5312. COLLOQUIUM IN MODERN EUROPEAN HISTORY (3-0).** An examination of the historical literature and issues in modern European history. The specific literature and issues examined will vary with the instructor.

**5313. COLLOQUIUM IN EUROPEAN REGIONAL/TOPICAL HISTORY (3-0).** An examination of the historical literature and issues pertaining to a region or a major topic in European history. The specific literature and issues examined will vary with the instructor.

**5321. SEMINAR IN 19TH CENTURY AMERICAN HISTORY (3-0).** A detailed investigation of a major aspect of 19th Century American history, involving original research and use of historical resources. The particular aspect investigated will vary with the instructor.

**5322. SEMINAR IN 20TH CENTURY AMERICAN HISTORY (3-0).** A detailed investigation of a major aspect of 20th Century American history, involving original research and use of historical resources. The particular aspect investigated will vary with the instructor.

**5324. SEMINAR IN REGIONAL/TOPICAL HISTORY OF THE U.S. (3-0).** A detailed investigation of a major aspect of a region or a

major topic in the history of the U.S., involving research and use of historical resources. The particular aspect investigated will vary with the instructor.

**5330. SEMINAR IN ANCIENT AND MEDIEVAL HISTORY (3-0).** A detailed investigation of a major aspect of ancient and medieval history, involving original research and use of historical resources. The particular aspect investigated will vary with the instructor.

**5331. SEMINAR IN EARLY MODERN EUROPEAN HISTORY (3-0).** A detailed investigation of a major aspect of early modern European history, involving original research and use of historical resources. The particular aspect investigated will vary with the instructor.

**5332. SEMINAR IN MODERN EUROPEAN HISTORY (3-0).** A detailed investigation of a major aspect of modern European history, involving original research and use of historical resources. The particular aspect investigated will vary with the instructor.

**5333. SEMINAR IN EUROPEAN REGIONAL/TOPICAL HISTORY (3-0).** A detailed investigation of a region or a major topic in European history, involving research and use of historical resources. The particular aspect investigated will vary with the instructor.

**5339. HISTORICAL THEORY AND METHODOLOGY (3-0).** An examination of theories of historical knowledge, the history of the discipline, various historical methodologies, and research techniques. Required for all history M.A. and Ph.D. students.

**5340. ISSUES AND INTERPRETATIONS IN AMERICAN HISTORY (3-0).** A critical survey of American historical scholarship from colonial times to the present. Required for all history M.A. students who are emphasizing American history.

**5341. ISSUES AND INTERPRETATIONS IN EUROPEAN HISTORY (3-0).** A critical survey of European historical scholarship from ancient times to the present. Required for all history M.A. students who are emphasizing European history.

**5342. PRINCIPLES OF ARCHIVES AND MUSEUMS I (3-0).** The historical evolution of archival science, emphasizing the development of the archives profession, archival principles and theories, appraisal and acquisition techniques, the laws affecting archives, programming and outreach, automation, conservation and preservation, and administration of collections.

**5343. PRINCIPLES OF ARCHIVES AND MUSEUMS II (3-0).** Training in the methods and techniques of processing archives and historical manuscripts. Focuses on the day-to-day responsibilities of archivists and curators, such as appraising, accessioning, arranging, and describing collections. Prerequisite: HIST 5342.

**5345. INTRODUCTION TO PUBLIC HISTORY (3-0).** An overview of the field of public history focusing on public historians, their work, their relationship to academic historians, their accomplishments, and the ethical principles under which they operate.

**5348. TOPICS IN PUBLIC HISTORY (3-0).** A detailed examination of some aspect of public history (e.g. historical editing, oral history, historic preservation). The particular topic will vary with the instructor. Prerequisite: HIST 5345.

**5349. TOPICS IN WORLD CIVILIZATION (3-0).** Examines subjects of immediate interest relating to world civilization not covered in other existing courses.

**5350. HISTORY OF CARTOGRAPHY (3-0).** A history of maps and their making and cartographic documentation as a source for understanding historical development. An aspect of the history of science and technology and the history of discovery and exploration.

**5391, 5691. INDEPENDENT STUDY.** For history M.A. students.

**5392. HISTORICAL PERSPECTIVES ON THE HUMANITIES (3-0).** An historical inquiry into problems and issues of contemporary relevance in the humanistic disciplines. The particular problems and issues investigated will vary with the instructor.

**5395. NON-THESIS CAPSTONE (3-0).** Readings in the non-thesis student's final semester, directed by the three-person faculty committee supervising the student's program of work. Required of all non-thesis history M.A. students.

**5398, 5698. THESIS.** For thesis history M.A. students. 5398 graded R/F only; 5698 graded P/F/R.

**5644. ARCHIVAL/PUBLIC HISTORY INTERNSHIP.** Work experience for either Archival or Public History students. Archival Certification: Hands-on experience in archives, records centers, or historical manuscripts repositories. Public History: Placement in a history-oriented position in a private or public agency or organization in the community. Prerequisites: HIST 5342 and 5343, or HIST 5345 and 5348. Graded P/F/R.

**6301. COLLOQUIUM IN EXPLORATION, DISCOVERY, AND THE HISTORY OF CARTOGRAPHY (3-0).** A detailed examination of these topics in the context of transatlantic contacts. Employs and interprets historical maps in transatlantic context. Required for all history Ph.D. students.

**6302. COLLOQUIUM IN MIGRATION, COLONIZATION, AND COMPARATIVE FRONTIERS (3-0).** A detailed examination of these topics in the context of transatlantic contacts and interchanges between societies in Africa, the Americas and Europe. Required for all history Ph.D. students. Prerequisites: HIST 5339, 6301, 6338.

**6321. SEMINAR IN EXPLORATION, DISCOVERY, AND THE HISTORY OF CARTOGRAPHY (3-0).** A detailed research investigation into these topics in the context of transatlantic contacts. Employs maps and other primary sources to research these transatlantic topics. Required for all history Ph.D. students. Prerequisites: HIST 5339, 6301, 6338.

**6322. SEMINAR IN MIGRATION, COLONIZATION, AND COMPARATIVE FRONTIERS (3-0).** A detailed research investigation into these topics in the context of transatlantic contacts and interchanges between societies in Africa, the Americas, and Europe. Employs primary sources to research these transatlantic topics. Required for all history Ph.D. students. Prerequisites: HIST 5339, 6302, 6338.

**6338. ISSUES IN TRANSATLANTIC HISTORY (3-0).** A critical survey of topics and issues involving contact and interchange among the peoples of the continents bordering the Atlantic Ocean. HIST 6301 and 6302 explore these themes in greater depth. Required for all history Ph.D. students.

**6391, 6691, 6991. INDEPENDENT STUDY (3-0).** For history Ph.D. students.

**6399, 6699, 6999. DISSERTATION.** Prerequisite: admission to candidacy for the Ph.D. in history. 6399 and 6699 graded R/F only; 6999 graded P/F/R.

## Objective

The Graduate Humanities Program offers a course of study designed to instill understanding across the spectrum of fields traditionally identified as the Humanities, the study of humankind and of the cultures it has created. The Humanities includes history; philosophy; languages; linguistics; literature; anthropology; the history, theory and criticism of the fine arts; ethics; comparative religion; social and political theory; and those aspects of the social sciences employing historical or philosophical approaches or methodologies that subordinate quantitative procedures to an interpretive and qualitative evaluation of their subject matters. The program combines a strong foundation in the concepts and methods shared by the humanities with intensive study in an area of concentration that synthesizes or integrates two or more disciplines. It is not suited for those wishing to pursue a traditional disciplinary degree, because its views, subject matter and methods transcend those normally allowed in a single discipline. Study in the Humanities allows integration and forging connections across disciplinary boundaries. Coursework and examinations must reflect the methods and perspectives of the Humanities.

The foundation of the program is a series of courses, taken at the outset of study, whose purpose is to enhance a student's ability to view complex issues from a variety of perspectives. Drawing on classical and contemporary approaches, the foundation courses present and illustrate the basic concepts, the theoretical frameworks, and the methods of the humanities.

The Master's Program in Graduate Humanities, after the completion of foundation courses, applies the methods and perspectives of the Humanities foundation in integrating the subject areas of concentration. Graduates of the program utilize these abilities in teaching, research, translation, the ministry, government service, and private non-profit organizations. Each student's course of study is planned individually and provides in-depth training in a specialization within the context of the Humanities' traditional focus on human goals, needs, and values.

## Admission Requirements

Potential students must apply for admission through, and supply all information and meet all admission standards required by, the Graduate School. In addition, the following information will be considered in determining admission status into the Graduate Humanities Program:

1. a GPA no lower than 3.0 for all undergraduate work
2. GRE scores falling in the range of or surpassing those submitted by typical students in our program: Verbal - 540-610; Quantitative - 540-640; Analytic - 580-640 or Analytic Writing - 3-5.
3. three satisfactory letters of recommendation, as judged by the graduate advisor
4. a satisfactory written summary of degree objectives, as judged by the graduate advisor

## Unconditional Admission

For unconditional admission students must meet all four requirements.

## Program in Humanities

[www.uta.edu/huma/gradhuma](http://www.uta.edu/huma/gradhuma)

### Area of Study and Degrees

Humanities

M.A.

### Master's Degree Plan

Thesis and Non-Thesis

### Director of Humanities

Susan J. Hekman

320 Carlisle Hall, 817-272-2389

### Graduate Faculty

The Graduate Faculty of the College of Liberal Arts

## Probationary Admission

Students not meeting all of the requirements may still be considered for probationary admission; no single criterion will end consideration of an applicant. Students entering the program under probationary status will be granted unconditional admission only after completing 12 hours of graduate courses, approved by the graduate advisor, earning no grade below B.

## Provisional Admission

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

## Admission Deferral and Denial

Students will be denied admission or admission will be deferred if they perform poorly on all of the above criteria. A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

## Fellowships

Fellowships, when available, will be awarded on a competitive basis. Nominees for the Graduate School Master's Fellowship in Humanities will be selected based on the following criteria:

- Candidates must be new students entering in the fall semester, with a minimum of 6 hours of enrollment in both long semesters to retain their fellowships.
- The minimum undergraduate GPA requirement is 3.00, as calculated by the Graduate School, plus a GPA of 3.0 for any graduate hours.
- Transcript of a completed bachelor's degree from an accredited institution.
- Three letters of recommendation.
- A written statement explaining the applicant's reasons for graduate study in Humanities.

## Degree Requirements

The basic general admission and degree requirements are those of the Graduate School, as stated in this catalog. A Student Handbook is provided each student in the Graduate Humanities Program. Students are responsible for all information regarding rules, policies, and procedures as defined in the student handbook. In addition, all MA students must fulfill the following requirements:

1. **Foundation requirement**—Three courses are required. All students must complete the Conceptual Bases of the Humanities (HUMA 5300) within the first two semesters in the program. Students must also take two of the remaining four foundation courses: HUMA 5303, HUMA 5304, HUMA 5306, HUMA 5307.
2. **Foreign Language requirement**—Students must demonstrate the ability to use one foreign language as a research tool in the humanities by means of a translation or other written exercise.
3. **Scope requirement**—For the remaining hours of coursework, students will devise an integrated program of multidisciplinary study within the humanities disciplines with the advice of their committees. No more than 15 hours may be taken in any one discipline.

## Master of Arts in the Humanities

Students may choose a thesis or non-thesis option. The thesis option requires 30 credit hours, 24 hours of course work plus 6 hours of thesis preparation. Thesis students must pass an oral defense of the thesis upon its completion. The non-thesis option requires 36 hours of course work and the preparation of a qualifying paper. Non-thesis students must pass a comprehensive examination at the end of their program of study.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Humanities (HUMA)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

### Foundation Courses

**5300. CONCEPTUAL BASES OF THE HUMANITIES (3-0).** Introduces students to fundamental concepts, methods, and issues central to the humanities. Particular attention will be given to a variety of epistemological approaches in humanistic inquiry, to theories of interpretation as applied to cultural constructs, and to recent issues and problems in the humanities. Required of all MA candidates in the humanities.

**5303. APPROACHES TO THE STUDY OF CULTURE (3-0).** Examination of the theories and methods by which culture and society have been studied. Discussion of the relationship among natural scientific, social scientific, and humanistic methodologies. Fulfills Foundation requirement.

**5304. CULTURAL STUDIES (3-0).** The study of how elements of culture, particularly texts, practices, and material objects, are interconnected with structures of power. Topics may include analyses of cultural studies in various humanities disciplines, theoretical approaches to cultural studies, and the relationship between cultural studies and the traditional humanities disciplines. Fulfills Foundation requirement.

**5306. CRITICISM, LANGUAGE, AND HISTORY (3-0).** This course examines the ways in which linguistics, literary criticism and history have intersected in 20th century thought. Areas of analysis may include anthropology, historiography, poetics, rhetoric, semiotics, and/or structuralism. Fulfills Foundation requirement.

**5307. TOPICS IN GENDER STUDIES (3-0).** Analysis of the role of gender studies in the humanities disciplines. Topics may include examination of the methods and conclusions of gender analysis in history, the social sciences, philosophy, or literary criticism. Fulfills Foundation requirement.

#### Other Courses

**5391. CONFERENCE COURSE IN THE HUMANITIES.** Prerequisite: permission of the instructor and Graduate Advisor. Graded P/F/R.

**5392. TOPICS IN THE HUMANITIES (3-0).** Selected topics of interdisciplinary interest. May be repeated for credit when subject matter changes.

**5398, 5698. THESIS.** The graduate student must be registered for this course (a) when in consultation over the thesis with the supervisory committee and (b) in the semester or term in which the Master of Arts degree will be conferred. Prerequisite: permission of the Graduate Advisor in Humanities at least 30 days before enrolling. 5398 graded R/F only; 5698 graded P/F/R.

**6391. READINGS IN THE HUMANITIES (3-0).** Supervised individual study for students preparing for the comprehensive examination. Prerequisite: permission of the instructor and Graduate Advisor. Graded P/F/R.

# Department of Linguistics and TESOL

<http://ling.uta.edu>

## Areas of Study and Degrees

Linguistics  
M.A., Ph.D.

TESOL  
M.A.  
Graduate Certificate

Humanities  
M.A.  
(See Program in Humanities)

## Master's Degree Plans

Thesis, Thesis Substitute and Non-Thesis

## Department Chair

David J. Silva  
403 Hammond, 817-272-3133

## Associate Chair

Donald A. Burquest  
127 Hammond, 817-272-3133

## Ph.D. Graduate Advisor

Jerold A. Edmondson  
403 Hammond, 817-272-3133

## M.A. Linguistics Advisor

Laurel S. Stvan  
403 Hammond, 817-272-3133

## M.A. TESOL Advisor

Winnie W. F. Or  
403 Hammond, 817-272-3133

## Graduate Faculty

Professor

Edmondson

Associate Professors

Burquest, Silva

Assistant Professors

Or, Stvan

Adjunct Professors

Grimes, Headland, G. Huttar, Merrifield, Pike, Rensch, Robbins

Adjunct Associate Professors

Franklin, Gregerson, Hwang

Adjunct Assistant Professors

Boothe, Bowling, Bruce, Diehl, Gallman, Hohulin, M. Huttar,

Leaders, McElhanon, C. McKinney, N. McKinney, Morgan,

Morren, Reed, Simons, Turnbull, Walker, Walter, Wendell

Professor Emeritus

Longacre

## Objectives

Linguistics, the systematic study of human language, is situated at the crossroads of the humanities, the social sciences, and the physical sciences. The Department of Linguistics and TESOL at The University of Texas at Arlington provides comprehensive training in methods of language analysis, as informed by current linguistic theory and data from a variety of languages. Students receive instruction in the analysis of sound systems (phonetics and phonology) and grammar (morphology and syntax); in addition, the program has strengths in field linguistics, discourse analysis, sociolinguistics, literacy, translation and teaching English to speakers of other languages (TESOL). Linguistic science has applications in language learning and teaching, literary analysis and criticism, psychology, communication, anthropology, philosophy, neurology, sociology, speech recognition and synthesis, and artificial intelligence. Graduates of the program may find employment in fieldwork and field program administration, international affairs and development, literacy consultation and language planning, language technology, research, teaching, translation and other fields.

The master's degree in Linguistics provides broad-based training in the core areas of linguistics as well as firsthand experience working with geographically diverse, often previously undocumented languages.

The master's degree in TESOL provides broad-based training in the core areas of linguistics as well as concentrated training in areas particularly important to Teaching English to Speakers of Other Languages, including second language acquisition, relevant details of the phonological and grammatical structure of English, contrastive and error analysis, and matters relevant to TESOL curriculum design.

The Ph.D. degree provides advanced training in field linguistics and linguistic computing, and experience in presenting original research in professional venues. Students are expected to develop in-depth expertise in two or more areas of specialization.

For further information on graduate degree programs in Linguistics, consult the program's Web site at <http://ling.uta.edu> or contact the appropriate Graduate Advisor.

## Degree Requirements Linguistics

Graduate programs in linguistics are primarily designed for those with a background in one or more foreign languages and/or a background in the linguistic aspects of the English language. A graduate career in linguistics may also be appropriate to those with undergraduate study in anthropology, psychology, philosophy, or religion. Applicants without formal training in linguistics are invited to apply, provided that they are prepared to meet the department's requirements for leveling courses.

Requirements for master's and doctoral degrees are given in the Advanced Degrees and Requirements section of this catalog. In addition, the following apply to those pursuing a graduate degree in linguistics:

All students pursuing a graduate degree in linguistics must meet the degree prerequisites (i.e., leveling courses) and must take the core courses appropriate to their degree as published on the department's Web site.

## Linguistics Degree Plans

**M.A. Thesis Degree Plan:** 31 hours — 24 hours of graduate-level coursework plus one hour thesis writing course (LING 5100) plus six hours thesis credit (LING 5698). Students requiring leveling courses must add 9 hours, for a total of 40 hours.

**M.A. Thesis Substitute Degree Plan:** 34 hours — 30 hours of graduate-level coursework plus one hour thesis writing course (LING 5100) plus three hours thesis substitute credit (LING 5392) plus written examination plus oral defense of the thesis substitute. Students requiring leveling courses must add 9 hours, for a total of 43 hours.

**M.A. Non-Thesis Degree Plan:** 36 hours of graduate-level coursework plus comprehensive written examination on the coursework. Students requiring leveling courses must add 9 hours, for a total of 45 hours.

**Ph.D. Degree Plan:** 42 hours of graduate-level coursework, including 12 hours of core courses (professional development), 18 hours of linguistics content courses (6 hours each in three subfields of linguistics), 3 hours of dissertation proposal preparation (LING 6391) and 9 hours of dissertation (LING 6999). Students requiring leveling courses must add 9 hours, for a total of 51 hours.

All Ph.D. students must demonstrate knowledge of core areas in linguistics by passing a diagnostic examination before having completed 27 hours of enrollment in the doctoral program. In addition, there are foreign language and professional activities requirements that must be met. Visit <http://ling.uta.edu> for details.

## TESOL (Teaching English to Speakers of Other Languages)

Graduate programs in TESOL are primarily designed for those with a background in English language and literature and/or education. A graduate career in TESOL may also be appropriate to those with undergraduate study in a foreign language, international studies, or community development.

Requirements for master's degrees are given in the Advanced Degrees and Requirements section of this catalog. In addition, the following apply to those pursuing a graduate degree in TESOL:

### TESOL Degree Plans

**M.A. Thesis Degree Plan:** 33 hours — 24 hours of graduate-level coursework plus a three credit course in research design (e.g., LING 6381) plus six hours thesis credit (LING 5698).

**M.A. Non-Thesis Degree Plan:** 36 hours of graduate-level coursework plus comprehensive written examination on the coursework.

All M.A. TESOL students must demonstrate knowledge of a foreign language prior to unconditional admission to the degree program. Those without such background may pursue study of a foreign language at U.T. Arlington concurrent with probationary enrollment in the M.A. TESOL program.

For additional information on prerequisites or degree requirements, consult the Graduate Advisor.

## Certificate in Teaching English to Speakers of Other Languages (TESOL)

This program provides preparation—through study and practice—for the individual who wishes to teach English to speakers of other languages. It is available to any student who has been admitted to the Graduate School at U.T. Arlington.

The certificate requires 18 hours of course work: LING 5300, 5301, 5302, 5305, 5310, and 5303 or 5304. In addition to the course work, there is a practicum; this is done under LING 5110. LING 5300 (or equivalent linguistics course work) is a prerequisite for LING 5301, 5305, and 5310; LING 5301 is a prerequisite for LING 5302, 5303, and 5304. Even if the student presents an equivalency of LING 5300, 5301, and/or other course work, the 18-hour requirement must be met. A maximum of three credit hours of course work done at another institution can be transferred and counted toward the certificate.

Upon beginning study for the certificate, the student should contact the Graduate Advisor in TESOL to declare the intention to earn the certificate.

## The International Linguistics Center (SIL International)

The International Linguistics Center (ILC) is home to both SIL International (SIL) and the Graduate Institute of Applied Linguistics (GIAL), two non-profit organizations that conduct research and provide training of interest to linguists, translators, missionaries, anthropologists, literacy workers, bilingual educators, government officials, and others. Since the 1970s, U.T. Arlington has entered into a series of contractual agreements with SIL and GIAL such that many of the linguists based at the ILC hold appointments at U.T. Arlington as special members of the Graduate Faculty. The most current agreement also specifies terms for credit transfer between U.T. Arlington and GIAL. The ILC is located approximately 14 miles from U. T. Arlington, one mile west of Duncanville, at 7500 West Camp Wisdom Road, Dallas.

For more information about the ILC and its relationship to U.T. Arlington, contact the Chair of the Department of Linguistics & TESOL, David J. Silva, 403 Hammond Hall, 817-272-3133. Information specific to SIL can be obtained from SIL Vice President of Academic Affairs Paul Frank (972-708-7532) or at [www.sil.org](http://www.sil.org). Information about GIAL is available from GIAL President David A. Ross (972-708-7340) or at [www.gial.edu](http://www.gial.edu).

## Admission Requirements for Graduate Degree Programs in Linguistics

In evaluating candidates for admissions to its graduate degree programs, the Linguistics & TESOL Faculty has adopted a comprehensive approach that is sensitive to the diversity of backgrounds of its applicants. To this end, the following constellation of quantitative and qualitative factors has been established to make explicit the range of criteria upon which admissions decisions will be based. These factors are then applied to the Admission Metrics established for each degree program. (See below for admission requirements for the Graduate Certificate in TESOL.)

### Admission Factors

Admission decisions into a degree program in the Department of Linguistics & TESOL are made on the basis of two types of factors, quantitative and qualitative.

1. Quantitative Factors
  - a. Grade Point Average (GPA)

- i. For M.A. program applicants, undergraduate GPA is determined by the U.T. Arlington Graduate School.
- ii. For Ph.D. program applicants, GPA is based on all graduate work completed and recorded at the time the applicant submits an application for admission.
- b. Graduate Record Examination (GRE) Scores  
All applicants are required to submit GRE scores. There are no exceptions. The Department of Linguistics & TESOL evaluates each applicant's sub-scores separately: verbal, quantitative, and analytical.
- 2. Qualitative Factors
  - a. Letters of Recommendation  
Each applicant must present three (3) letters of recommendation that unequivocally indicate that the applicant is prepared for and capable of successful graduate study in linguistics or TESOL at U.T. Arlington. The letters should further indicate that the applicant is capable of completing the appropriate degree program.
  - b. Personal Statement  
Each applicant must write a statement that explains how graduate study in linguistics is related to both his/her previous academic training and his/her career goals. The statement will be evaluated on the degree to which it is clear, reasonable, and consistent with the research and teaching agenda of the current faculty in Linguistics & TESOL at U.T. Arlington. The statement should also convey a level of commitment and maturity commensurate with the applicant's desired degree goals.
  - c. Undergraduate Preparation  
Applicants to all degree programs must have passed the following three courses or reasonable equivalents as determined by the graduate advisor (U.T. Arlington equivalents are noted in parentheses):
    - i. English composition (ENGL 1302);
    - ii. college-level mathematics (MATH 1302);
    - iii. a laboratory science (any 1000-level course in BIOL, CHEM, GEOL or PHYS; LING 5322 may also be used to fulfill this requirement);
  - d. Previous Graduate Work (Ph.D. applicants only)  
Ph.D. applicants must present at least 30 semester credit hours of previous graduate-level coursework in any field (not necessarily linguistics). Ph.D. applicants who present fewer than 30 semester credit hours will automatically be considered as applicants to the M.A. Linguistics program and will be afforded the opportunity to request entry into the doctoral program once the minimum number of hours have been attained.

**Admission Metrics**

In formulating a recommendation for admission, the graduate advisors will apply the following admission metrics to each applicant's admission dossier.

- 1. M.A. in TESOL
  - a. Unconditional Admission  
Applicants for the M.A. in TESOL will be offered unconditional admission if they meet either of the following two sets of criteria:
    - i. The applicant presents an undergraduate GPA of at least 3.0, a GRE Verbal score of at least 550, a GRE Quantitative score of at least 450, a GRE Analytical score of at least 4.0, and a full set of Qualitative Factors. In addition, applicants for whom English is not their native language and who have not been granted an undergraduate degree by an English-medium

- institution must also present a Test of English as a Foreign Language (TOEFL) score of at least 250.
- ii. The applicant presents an undergraduate GPA of at least 3.5, a GRE Verbal score of at least 500, a GRE Quantitative score of at least 400, a GRE Analytical score of at least 3.5, and a full set of Qualitative Factors. In addition, applicants for whom English is not their native language and who have not been granted an undergraduate degree by an English-medium institution must also present a Test of English as a Foreign Language (TOEFL) score of at least 250.
- b. Probationary Admission  
Applicants for the M.A. in TESOL who present a complete application that:
  - i. includes a GRE Verbal score of less than 500; or
  - ii. includes a GRE Quantitative score of less than 400; or
  - iii. includes a GRE Analytical score of less than 3.5
  - iv. lacks the undergraduate preparation specified above but who otherwise meet a majority of the remaining admission criteria (including an undergraduate GPA of at least 3.0), will be offered probationary admission. Students on probation must:
    - complete any undergraduate courses necessary for unconditional admission during their first two semesters of study; and
    - achieve a GPA of at least 3.3 in the first 9 graduate-level credit hours as an M.A. TESOL student.

- 2. M.A. in Linguistics
  - a. Unconditional Admission  
Applicants for the M.A. in Linguistics will be offered unconditional admission if they meet either of the following sets of criteria:
    - i. The applicant presents an undergraduate GPA of at least 3.0, a GRE Verbal score of at least 450, a GRE Quantitative score of at least 550, a GRE Analytical score of at least 4.0, and a full set of Qualitative Factors. In addition, applicants for whom English is not their native language and who have not been granted an undergraduate degree by an English-medium institution must also present a Test of English as a Foreign Language (TOEFL) score of at least 230.
    - ii. The applicant presents an undergraduate GPA of at least 3.5, a GRE Verbal score of at least 400, a GRE Quantitative score of at least 500, a GRE Analytical score of at least 3.5, and a full set of Qualitative Factors. In addition, applicants for whom English is not their native language and who have not been granted an undergraduate degree by an English-medium institution must also present a Test of English as a Foreign Language (TOEFL) score of at least 230.
  - b. Probationary Admission  
Applicants for the M.A. in Linguistics who present a complete application that:
    - i. includes a GRE Verbal score of less than 400; or
    - ii. includes a GRE Quantitative score of less than 500; or
    - iii. includes a GRE Analytical score of less than 3.5
    - iv. lacks the undergraduate preparation specified above but who otherwise meet a majority of the remaining admission criteria (including an undergraduate GPA of at least 3.0), will be offered probationary admission. Students on probation must:
      - complete any undergraduate courses necessary for unconditional admission during their first two semesters of study; and



- achieve a GPA of at least 3.3 in the first 9 graduate-level credit hours as an M.A. Linguistics student.

### 3. Ph.D. in Linguistics

#### a. Unconditional Admission

Applicants for the Ph.D. in Linguistics will be offered unconditional admission if they meet either of the following sets of criteria:

- The applicant presents an graduate GPA of at least 3.3, a GRE Verbal score of at least 500, a GRE Quantitative score of at least 550, a GRE Analytical score of at least 4.0, and a full set of Qualitative Factors. In addition, applicants for whom English is not their native language and who have not been granted an undergraduate degree by an English-medium institution must also present a Test of English as a Foreign Language (TOEFL) score of at least 230.
- The applicant presents an undergraduate GPA of at least 3.6, a GRE Verbal score of at least 450, a GRE Quantitative score of at least 500, a GRE Analytical score of at least 3.5, and a full set of Qualitative Factors. In addition, applicants for whom English is not their native language and who have not been granted an undergraduate degree by an English-medium institution must also present a Test of English as a Foreign Language (TOEFL) score of at least 230.

#### b. Probationary Admission

Applicants for the Ph.D. in Linguistics who present a complete application that:

- includes a GRE Verbal score of less than 450; or
- includes a GRE Quantitative score of less than 500; or
- includes a GRE Analytical score of less than 3.5
- lacks the undergraduate preparation specified above but who otherwise meet a majority of the remaining admission criteria (including a graduate GPA of at least 3.3), will be offered probationary admission. Students on probation must:
  - complete any undergraduate courses necessary for unconditional admission during their first two semesters of study; and
  - achieve a GPA of at least 3.3 in the first 9 graduate-level credit hours as a Ph.D. Linguistics student.

For those applicants whose credentials do not meet the conditions for unconditional or probationary admission as outlined above, the graduate advisor will recommend one of the following:

#### c. Provisional Admission

Applicants unable to supply all required documentation prior to the admission deadline but who otherwise appear to meet admission requirements (either unconditional or probationary) may be granted provisional admission. All necessary admission documentation must be submitted to the U.T. Arlington Graduate School by the end of the student's first semester of study, including all required standardized test scores.

#### d. Deferred Admission

Applicants for whom the admission file is incomplete but for whom provisional admission is not appropriate will have a final decision admission deferred. In such cases, a final decision will be made only when the applicant presents a complete admission file.

#### e. Denial of Admission

Applicants who do not meet a majority of the admission standards set forth above will be referred to the Linguistics Graduate Studies

Committee (GSC) for final adjudication. Upon considering the applicant's credentials, the GSC may (1) recommend to the Dean of the Graduate School that the applicant be admitted on probation and (2) specify the relevant conditions. The GSC may otherwise recommend that the applicant be denied admission.

## Special Admissions Requirements for the Graduate Certificate in TESOL

Students wishing to apply to the U.T. Arlington Graduate School as Special Students solely for the purpose of earning the Graduate Certificate in TESOL must have earned an undergraduate degree at an accredited institution and present an undergraduate GPA of at least 3.0 (as determined by the U.T. Arlington Graduate School). No additional requirements apply. Students seeking to transfer from Special Student status into a graduate degree program at U.T. Arlington must re-apply to the U.T. Arlington Graduate School as degree-seeking students and meet all published admissions requirements, including those pertaining to standardized tests. No student will be "automatically" or "exceptionally" moved from Special Student status into any graduate degree program.

The Web site for the U.T. Arlington Office of Research and Graduate Studies provides additional information about graduate study at U.T. Arlington and about the admission process, including general testing requirements and other paperwork. Students may apply for admission online or request application materials be sent via post.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Linguistics (LING)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5100. THESIS WRITING SEMINAR (1-0).** Graded P/F only. Techniques for researching and writing a thesis/dissertation in linguistics. Required of all students who have elected the Thesis or Thesis Substitute degree option in Linguistics.

**5110. TESOL PRACTICUM (1-0).** Graded P/F only. In observing ESOL classes or in teaching learners of ESOL, the student demonstrates ability to apply the principles presented in the TESOL Certificate coursework. Prerequisite: permission of instructor.

- 5190. CONFERENCE COURSE IN LINGUISTICS (1-0).** Graded P/F/R. Prerequisite: permission of Graduate Advisor.
- 5300. LINGUISTIC ANALYSIS (3-0).** An overview of the study of human language from a linguistic perspective. Topics covered may include the analysis of language structures, the study of language in social contexts, the principles governing language change, and the application of linguistic analysis to language teaching, literary studies, literacy, and translation. May not be used to fulfill the MA degree requirements in linguistics.
- 5301. TEACHING ENGLISH AS A SECOND OR FOREIGN LANGUAGE (3-0).** Presentation and critique of methodologies of teaching English to speakers of other languages, with emphasis on techniques of teaching aural comprehension; speaking, reading, and writing skills; attention to testing, language laboratory, and linguistic-cultural differences. Prerequisite: introductory course in linguistics or permission of instructor.
- 5302. METHODS AND MATERIALS FOR TEACHING ENGLISH AS A SECOND OR FOREIGN LANGUAGE (3-0).** Systematic study of the application of linguistic theory and findings; emphasis on pedagogical strategies, materials, and tests; attention to current and past research and practices. Prerequisite: LING 5301.
- 5303. CONTRASTIVE ANALYSIS AND ERROR ANALYSIS IN THE TEACHING OF ENGLISH AS A SECOND OR FOREIGN LANGUAGE (3-0).** A study of contrastive analysis and error analysis as means of defining student problems and progress; emphasis on current research; application to specific problems and contexts. Prerequisite: LING 5301.
- 5304. PEDAGOGICAL GRAMMAR OF ENGLISH (3-0).** Grammaticality, variation, and acceptability applied to teaching English as a second or foreign language. Problems of description; means of application; adaptation to current pedagogical methods. Prerequisite: LING 5301.
- 5305. SECOND LANGUAGE ACQUISITION (3-0).** Study of the processes of first and second language acquisition, their similarities and differences, language disorders, language perception and production, and implications of language acquisition research for linguistic theory and language teaching.
- 5306. TESOL CURRICULUM DESIGN (3-0).** Systematic presentation of elements in development, management and evaluation of TESOL programs. Attention to needs analysis, syllabus design, materials selection and adaptation, teaching and evaluation in language curriculum design. Prerequisite: LING 5301.
- 5307. PEDAGOGICAL PHONOLOGY OF ENGLISH (3-0).** A study of the sound system of English. Topics include segmental phonemes, stress, length, intonation and variation at the lexical and utterance levels. Application to teaching English as a second or foreign language. Problems of description; means of application; adaptation to current pedagogical methods. Prerequisites: LING 5300 and LING 5301.
- 5309. LANGUAGE USE IN MULTILINGUAL SOCIETIES (3-0).** An overview of linguistics and some of its applications, with primary focus on language use in developing nations. May not be used to fulfill the MA degree requirements in linguistics.
- 5310. SOCIOLINGUISTICS (3-0).** The study of language in its social context, including topics such as linguistic variation, address and reference, speech levels, bilingualism, code switching, speech acts, conversational analysis, and language and gender.
- 5311. SOCIOLINGUISTICS OF SOCIETY (3-0).** The study of macro-sociolinguistics, including topics such as multilingualism, language standardization and planning, literacy, language dominance, maintenance and death, language and identity, diglossia, and pidgins and creoles.
- 5312. LANGUAGE AND GENDER (3-0).** The role of language in the expression and creation of gender identities. Gender differences in language structure and use, men's and women's languages in other cultures, the acquisition of gendered ways of speaking, and sexism in language.
- 5313. TOPICS IN SOCIOLINGUISTICS (3-0).** Selected topics relating the scientific methodologies of linguistics to larger concerns of society and culture including cognition, motivation, description and analysis. May be repeated for credit when topic changes.
- 5314. HISTORICAL AND COMPARATIVE LINGUISTICS (3-0).** The study of language development and change; comparative method and its use in linguistic reconstruction; laws of language change.
- 5320. PHONOLOGICAL THEORY (3-0).** Explores the principles governing sound systems in human languages.
- 5321. ADVANCED PHONOLOGICAL THEORY (3-0).** A continuation of LING 5320. Topics include autosegmental analysis, lexical phonology, metrical phonology and phonological feature geometry. May be repeated for credit when topic changes. Prerequisite: LING 5320.
- 5322. LABORATORY PHONOLOGY (3-0).** An investigation into the physical properties of human speech. Students will gain hands-on experience with computer-assisted speech analysis. No prior computer experience is assumed. Prerequisite: LING 5320
- 5330. FORMAL SYNTAX (3-0).** Explores the grammatical structures characteristic of human language by analyzing data from diverse languages within the theoretical framework of formal syntax.
- 5331. ADVANCED FORMAL SYNTAX (3-0).** A continuation of LING 5330. Investigates theoretical controversies in formal syntax and provides extensive opportunity for application in linguistic field work. Prerequisite: LING 5330.
- 5332. DISCOURSE GRAMMAR (3-0).** Studies grammatical structures of discourse, paragraph, sentence, and clause, using texts and other data from typologically different languages. Focuses on both morphosyntactic forms and their functions in discourse.
- 5333. FUNCTIONAL-TYOLOGICAL GRAMMAR (3-0).** Grammatical analysis based on the communicative functions of grammar as mediated through discourse; involves comparison across languages.
- 5334. MORPHOLOGY (3-0).** A theoretical and typological investigation into the nature of word-structure and word-formation processes in human languages.
- 5335. LANGUAGE UNIVERSALS AND LINGUISTIC TYPOLOGY (3-0).** Consideration of universals in human language, their explanation and description, and language types.
- 5340. PRINCIPLES OF TRANSLATION (3-0).** Theory and procedures in cross-language transfer with emphasis on basic linguistic notions such as form vs. meaning, multiple senses, and types of lexical equivalences and sociolinguistic factors involved in idiomatic translation. Prerequisite: LING 5330 or 5333, or permission of the instructor. May not apply toward degree requirements if LING 5341 and ANTH 5342 are applied.
- 5341. PRINCIPLES OF LITERACY (3-0).** Principles involved in the introduction of literacy to preliterate societies. Includes consideration of motivational factors, stimulation of indigenous authorship, orthography design, elements of reading methodology and alternative strategies for literacy programs. May not apply toward degree requirements if LING 5340 and ANTH 5342 are applied.
- 5342. LITERACY INSTRUCTION AND APPLIED LINGUISTICS (3-0).** A study of the linguistic, pedagogical, and sociocultural bases for training literacy teachers in languages of preliterate societies. Surveys current trends in literacy instruction, issues of language choice, and the use of linguistically appropriate material.

- 5343. READING THEORY AND APPLIED LINGUISTICS (3-0).** Survey of reading theory with practical application to preparation of literacy materials for preliterate societies. Focuses on specific linguistic and psycholinguistic factors involved. Prerequisites: LING 5320.
- 5344. SOCIOLINGUISTIC ASPECTS OF LANGUAGE PROGRAMS (3-0).** Survey of the linguistic and social factors involved in the development of language programs for preliterate speakers of vernacular languages. Special attention given to the effect of using the mother tongue and/or a second language in such programs, and accompanying measurement and documentation.
- 5345. SEMANTICS (3-0).** Considers meaning with respect to how humans form concepts in terms of semantic features, categorization, prototype imaging, cultural scenes, scripting and coherence within world views.
- 5346. TOPICS IN APPLIED LINGUISTICS (3-0).**
- 5347. PRAGMATICS (3-0).** Analysis of how context and form interact with meaning. Topics may include deixis, reference, speech acts, presupposition, implicature, information structure and intonation.
- 5350. TEXT ANALYSIS (3-0).** Methods of charting and analyzing texts to reveal the systematic contributions of pragmatic choices to their organization and meaning. Prerequisite: LING 5330, 5332, or 5333.
- 5351. SPOKEN DISCOURSE (3-0).** Techniques for collecting, transcribing, and analyzing conversation and other forms of spoken communication. Topics may include discourse prosody, turn-taking and exchange structure, interactional sociolinguistics, discourse in oral cultures, and cross-cultural communication.
- 5360. NON-WESTERN LINGUISTIC STRUCTURES (3-0).** Study of a selected non-Western language, language family or language area based on descriptive linguistic analysis. May be repeated once for credit as the topic varies.
- 5361. READINGS IN NON-WESTERN LINGUISTIC STRUCTURES (3-0).** May not be used to fulfill the non-Western language requirement. Prerequisite: LING 5360 or equivalent.
- 5370. SURVEY OF LINGUISTIC THEORIES (3-0).** A comparison and contrast of various linguistic theories, with consideration of their assumptions and problem-solving capacities.
- 5371. SURVEY OF THEORIES IN APPLIED LINGUISTICS (3-0).** A comparison and contrast of various linguistic theories, with consideration of their implications for application to real-world problems involving language.
- 5372. READINGS IN LINGUISTICS (3-0).** May be repeated for credit when topic changes.
- 5380. FIELD METHODS (3-0).** The principles, techniques and practical aspects of linguistic field research. The course includes extensive practice in eliciting data (phonological, morpho-syntactic, textual and lexical) directly from a native speaker, as well as in managing, analyzing and describing the data obtained.
- 5381. THE COMPUTER AND NATURAL LANGUAGE (3-0).** Applications of computers to linguistic analysis, and applications of linguistic analysis to computing. Topics may include natural language processing, speech recognition and synthesis, language prostheses, statistical analysis, text processing, and corpus analysis.
- 5391. CONFERENCE COURSE IN LINGUISTICS.** Graded P/F/R. Prerequisite: permission of instructor.
- 5392. THESIS SUBSTITUTE (3-0).** Graded P/F/R.
- 5393. TESOL TEACHING AND OBSERVATION (3-0).** In teaching learners of ESOL and observing ESOL classes, the student demonstrates ability to apply the principles presented in the M.A. TESOL coursework. Prerequisites: LING 5302 and consent of M.A. TESOL Advisor.
- 5398, 5698, 5998. THESIS.** 5398 graded R/F only; 5698 and 5998 graded P/F/R. Prerequisite: permission of Graduate Advisor.
- 6191 (1-0), 6291 (2-0), 6391 (3-0), 6491 (4-0), 6591 (5-0), 6691 (6-0). RESEARCH IN LINGUISTICS.**
- 6300. PROFESSIONAL WRITING SEMINAR (3-0).**
- 6360. DISCOURSE THEORY SEMINAR (3-0).**
- 6380. FIELD METHODS SEMINAR (3-0).**
- 6381. RESEARCH DESIGN AND STATISTICS (3-0).** Practical training in methodologies and analytical techniques common in linguistic research. Topics include qualitative vs. quantitative data analysis, questionnaire design and administration, laboratory protocol, field protocol, population sampling, statistical analysis, and research ethics.
- 6390. LINGUISTICS SEMINAR (3-0).** Course may be repeated for credit when topic changes.
- 6399, 6699, 6999. DISSERTATION.** 6399 and 6699 graded R/F only. 6999 graded P/F/R. Prerequisite: permission of Ph.D. Graduate Advisor.

# Department of Modern Languages

<http://langlab.uta.edu>

Areas of Study and Degrees

Masters of Arts in Modern Languages  
(French; Spanish)

## Master's Degree Plans

Thesis, Thesis Substitute and Non-Thesis

### Chair

A. Raymond Elliott  
230 Hammond, 817-272-3161

### Graduate Advisor

Toni Sol  
310 Hammond, 817-272-5531

### Graduate Faculty

#### Associate Professors

Elliott, Israel-Pelletier,  
Rings, Sol, van Noort

#### Assistant Professors

Choi, Iñiguez-Becerra,  
Kania, Rojas-Auda

#### Professors Emeritus

Acker, Keilstrup,  
Studerus, Viña

#### Specialist/LAC Director

Williams

## Objectives

### Modern Languages (French; Spanish)

Graduate programs in modern languages are designed to enhance students' competence in the language and literature of their major language field. Specific objectives are to prepare students for a career in teaching or in any area in private or public life in which knowledge of a modern language is essential and to help them develop the techniques of independent research necessary for work beyond the master's level.

## Admission Standards

In compliance with HB 1641, the U.T. Arlington Department of Modern Languages does not use unwritten criteria, it does not assign a specific weight to any one factor being considered, and it does not use standardized tests (i.e., the GRE) in the admissions or competitive fellowship or scholarship process as the sole criterion for consideration or as the primary criterion to end consideration of an applicant to the M.A. program. However, the GRE is required and it is used as a criterion, without specific weight, in the Department's evaluation of candidates for admission to programs at each of three levels: Unconditional, Provisional, and Probationary Admission.

The Department wishes to be as thorough and fair as possible in evaluating applicants for admission. It recognizes that some applicants may appear to be stronger according to some criteria than according to other criteria. When an applicant does not completely meet the minimum expectations for Unconditional Admission, the Department considers the applicant for possible Provisional or Probationary Admission. When the applicant is not granted any of the three levels of admission, the decision may be deferred or the application is denied. We do not wish to exclude a qualified and potentially successful candidate who perhaps has approached but not met all the criteria completely. However, we do not wish to admit candidates who, based on the criteria, are deemed to have a poor chance of successfully completing the graduate program.

## Unconditional Admission

The criteria for admission below are used, without specific weights, as positive indicators of potential success in the program. All four criteria for unconditional admission must be met in order to receive unconditional admission.

- degree in the language to be studied of 18 upper level hours in the language or equivalent\*
- 3.0 undergraduate GPA (last 60 hours)
- submission of GRE scores\*\*
- 3 letters of recommendation (from faculty if possible) sent to the Department of Modern Languages Graduate Advisor.

\* A student with a bachelor's degree in a field other than Spanish may become an unconditionally admitted graduate student after fulfilling the upper level requirements in the language:

18 hours of upper level Spanish, or  
a combination of coursework and testing.

(A person with a bachelor's degree in a major other than Spanish must have the equivalent of 18 hours of upper level Spanish in order to become a master's student. The equivalency may take one of the following forms: A student may obtain 18 hours at the 3000 and 4000 level, or s/he may attempt to test out of nine hours of grammar, composition, and conversation. If a student tests out

of grammar, composition, and conversation, s/he must take nine hours of literature, in order to demonstrate the ability to do literary studies).

\*\*Under specific circumstances the GRE may be waived for those who received their B.A. from U.T. Arlington. See GRE Waiver or Advanced Admission. International students must also take the TOEFL test and score 550 on the paper-and-pencil test or 213 on the computerized test, in order to qualify for unconditional admission.

### Provisional Admission

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

### Deferred Admission

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

### Fellowships

Fellowships, when available, will be awarded on a competitive basis. Nominees for the Graduate School Master's Fellowship in Modern Languages will be selected based on the following criteria:

- Candidates must be new students entering in the fall semester, with a minimum of 6 hours of enrollment in both long semesters to retain their fellowships.
- The minimum undergraduate GPA requirement is 3.0, as calculated by the Graduate School, plus as GPA of 3.0 for any graduate credit hours.
- Transcript of a completed bachelor's degree in Spanish (or appropriate related field) from an accredited institution.
- Three letters of recommendation.
- A written statement explaining the applicant's reasons for graduate study in Spanish.

### Teaching Assistantships

Teaching assistantships are available for graduate students in the Department of Modern Languages. Graduate students who obtain teaching assistantships are required to take MODL 5305 Methods of MLT unless they are in the Dual Language Program.

### Degree Requirements

In addition to the Graduate School requirements for Master's degree programs, the following requirements apply in the Department of Modern Languages:

**Thesis:** A written comprehensive examination may be given at the discretion of the student's committee.

**Thesis Substitute:** There will be a comprehensive examination on the coursework and appropriate reading list. An oral defense of the thesis substitute may be required at the discretion of the student's supervising committee. At least 30 hours must be in coursework.

**Non-thesis:** There will be a comprehensive written examination on the coursework and an appropriate reading list.

### Modern Languages (French; Spanish)

Those wishing to major in a modern language or literature must upon admission have a baccalaureate degree with a major in that modern language or have a minimum of 18 advanced hours, or the equivalent in language proficiency and course content.

A knowledge of a second foreign language will be required, including listening, speaking, reading and writing skills as demonstrated by the successful completion of two semesters of coursework at the second-year level, MODL 5301, or by an appropriate examination. MODL 5310 is required.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

### Modern Languages (MODL)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5301. MODERN LANGUAGES FOR GRADUATE READING (3-0).** An intensive one-semester course designed for Ph.D. candidates and other graduate students to fulfill departmental foreign language requirements. Sections may be offered in French, German, Russian, or other applicable or appropriate languages. Does not fulfill any graduate degree requirements.

**5302. TOPICS ACROSS THE LANGUAGES (3-0).** This topic course varies in focus and will be taught by in-house faculty or visiting scholars. Taught in English, it will consider issues to cultural and literary concerns across the languages. Possible course offerings include: From Novel to Film, History and/as Literature, Propaganda as Literature, The History and Aesthetics of Film, The Other in Literature and Culture, Freud and the Literary Imagination, and Modernism.

**5304. CURRENTS IN EUROPEAN AND LATIN AMERICAN LITERATURES AND THOUGHT (3-0).** An examination of the mainstream genres and movements in European and Latin American literatures from 1600 to the present. Taught in English. Required for MA students in Modern Languages. May not be repeated for credit.

**5305. METHODS OF MLT (3-0).** Methods of Modern Language Teaching is an applied linguistics course for modern language professionals, focusing on the application of research and theory in linguistics and second language acquisition to the classroom setting. May include specific methods, language learning strategies, cooperative language learning, component and performance skills, and intercultural communication.

**5307. TOPICS IN SECOND LANGUAGE ACQUISITION (3-0).** May include topics in the areas of second language acquisition, methodologies, culture, and disciplines related to second language acquisition. May be repeated for credit as topics change.

**5308. TECHNOLOGY AND LANGUAGE INSTRUCTION (3-0).** Presentation and critique of research regarding the use of electronic media in language instruction; emphasis on computer and video, with attention to the application of research findings to the language classroom.

**5309. TRANSLATION THEORY (3-0).** Provides an introduction to basic concepts and offers a general conceptual framework for the study of translation theory. Students acquire the tools to identify, analyze and resolve translation problems while developing a rational approach to translation. (Following the completion of this course, students are encouraged to enroll in FREN 5309, GER 5309 or SPAN 5309, Practicum in Translation.)

**5310. THEORIES OF LITERATURE AND CULTURE (3-0).** Readings, analyses, and applications of recent literary and cultural theories. Particular attention to how such theories may serve to focus or refocus literature as cultural production. Required for the M.A. in French, German, and Spanish.

## French (FREN)

Students pursuing the MA degree in French are required to take MODL 5310. Students are encouraged to take at least one course in each of (1) 17th Century; (2) 18th Century; (3) 19th Century; (4) 20th Century; (5) Topics in French Culture.

**5101. TEACHING PRACTICUM I (1-0).** Required of all teaching assistants in French in their first semester. May not be counted toward a master's degree. Graded P/F/R.

**5102. TEACHING PRACTICUM II (1-0).** Required of all teaching assistants in French in their second semester. May not be counted toward a master's degree. Graded P/F/R.

**5190. CONFERENCE COURSE IN FRENCH LANGUAGE, CULTURE, OR LITERATURE (1-0).** Graded F/R.

**5314. ADVANCED STYLISTICS (3-0).** Focuses on advanced problems of grammar and style, including syntax, morphology, semantics and stylistics. Surveys the history of the French language, including influences of other languages and cultures on its evolution. Attention given to pedagogical models and approaches as well as intensive composition practices.

**5316. MEDIEVAL AND RENAISSANCE LITERATURE AND CULTURE (3-0).** A study of the main currents of French literature and culture in their social, economic and political context through the representative genres of the period: epic verse, poetry, tales, fables, comic narrative, and theatre to name a few.

**5317. 17TH AND 18TH CENTURY LITERATURE AND CULTURE (3-0).** A study of the main currents of French literature and culture in their social, economic and political context through the representative genres of the period: theatre, the romance, the novel, the portrait and maxim, the philosophic dialogue and tale, among others.

**5318. 19TH AND 20TH CENTURY LITERATURE AND CULTURE (3-0).** A study of the main currents of French literature and culture in their social, economic and political context through the representative genres of the period: theatre, the nouvelle, poetry, the novel, the anti-novel, etc.

**5321. TOPICS IN GENRES OF THE 17TH CENTURY (3-0).** Investigates ideology and practice through literature, the visual arts, music and other cultural "texts." Major topics may include "Versailles: Architecture, Literature, and Politics," "Jansenism and its Discontents:

Pascal, Racine, de Lafayette," "Libertins: Masks and Counter Masks." May be repeated for credit when topic changes.

**5325. TOPICS IN GENRES OF THE 18TH CENTURY (3-0).** Studies oppositional discourse as expressed through the different genres (theatre, poetry, fiction, political and philosophical writings) popular in the 18th century as well as the role and the effect of these works in constituting the Republic of Letters. May be repeated for credit when topic changes.

**5330. TOPICS IN GENRES OF THE 19TH CENTURY (3-0).** Concentrates on literature, the visual arts, entertainment, and fashion as expressions of popular culture. The rise of the "petite bourgeoisie," social utopias, the rebuilding of Paris, and responses to modernity will be studied in such courses as "Paris and Its Subcultures," "Impressionism and the Bourgeoisie," "The Novel and the Body." May be repeated for credit when topic changes.

**5331. TOPICS IN GENRES OF THE 20TH CENTURY (3-0).** Focuses on the work of French and Francophone writers in the light of modernist and post-modernist aesthetics. Literature, art, architecture, music, film, video, television, and other forms of popular production are studied as reflections of an era in crisis. May be repeated for credit when topic changes.

**5338. TOPICS IN FRENCH CULTURE (3-0).** Survey of themes and structures on a range of topics such as "Women in/as Fiction," "Self and Society," "Revolutions," "French Film." May be repeated for credit when topic changes.

**5391. CONFERENCE COURSE IN FRENCH LINGUISTICS, CULTURE, OR LITERATURE.** Graded R. 5398, 5698, 5998. THESIS. 5398 graded R/F only; 5698 and 5998 graded P/F/R. Prerequisite: permission of Graduate Advisor.

A course may be repeated for credit when the topic changes.

## Spanish (SPAN)

All students pursuing the MA in Spanish must take SPAN 5300 and 5303, and MODL 5310.

**5101. TEACHING PRACTICUM I (1-0).** Required of all teaching assistants in Spanish in their first semester. May not be counted toward a master's degree. Graded P/F/R.

**5102. TEACHING PRACTICUM II (1-0).** Required of all teaching assistants in Spanish in their second semester. May not be counted toward a master's degree. Graded P/F/R.

**5190. CONFERENCE COURSE IN SPANISH LANGUAGE AND LITERATURE (1-0).** Graded P/F/R. Prerequisite: permission of Graduate Advisor.

**5300. HISTORY OF THE SPANISH LANGUAGE (3-0).** Development of the Spanish language from its earliest forms to the present. Required for the MA in Spanish and the MA in Humanities with Spanish concentration.

**5302. SPANISH DIALECTOLOGY (3-0).** Phonological, lexical, and grammatical features in Iberia, South and North America, the Philippines, and in Sephardic dialect.

**5303. APPLIED SPANISH LINGUISTICS (3-0).** Pedagogy, pronunciation and orthography, morphology, syntax, semantics, and culture. Required for the MA in Spanish and the MA in Humanities with Spanish concentration unless 5302 taken.

**5310. TOPICS IN PENINSULAR SPANISH LITERATURE AND CULTURE TO THE EIGHTEENTH CENTURY (3-0).** Topics may

include: Medieval Spanish literature and culture, Golden Age Spanish literature and culture, or any particular movement, genre, work or author prior to the eighteenth century. May be repeated for credit when content changes.

**5311. TOPICS IN PENINSULAR SPANISH LITERATURE AND CULTURE, EIGHTEENTH CENTURY TO THE PRESENT (3-0).**

Topics may include: Neoclassic peninsular Spanish literature and culture, peninsular Spanish literature and culture of the Romantic period, Realist or Naturalist Spanish literature and culture, peninsular Spanish literature and culture since 1900, as well as any particular movement, genre, work or author from the eighteenth century to the present. May be repeated for credit when content changes.

**5313. TOPICS IN HISPANIC LITERATURE AND CULTURE (3-0).**

Special studies in areas not ordinarily covered by regular course offerings. Different topics may be repeated for credit.

**5314. TOPICS IN SPANISH-AMERICAN LITERATURE AND CULTURE TO MODERNISM (3-0).**

Topics may include: Colonial Spanish-American literature and culture, pre-modern Spanish-American literature and culture, Spanish-American literature and culture of the Enlightenment, or any particular movement, genre, work or author prior to Modernism. May be repeated for credit when content changes.

**5315. TOPICS IN CONTEMPORARY SPANISH-AMERICAN LITERATURE AND CULTURE, MODERNISM TO THE PRESENT (3-0).**

Topics may include: Spanish-American literature and culture of Modernism, modern Spanish-American literature and culture, or any particular movement, genre, work or author from Modernism to the present. May be repeated for credit when content changes.

**5317. U.S. LATINO LITERATURE AND CULTURE (3-0).**

Readings of poetry, theater, and prose in relation to the specific socio-historical and

political context of U.S. Latino life. Charts changing concepts of cultural identity and the evolution of cultural coding in texts written after 1960.

**5318. MEXICAN LITERATURE AND CULTURE (3-0).** Readings in all Mexican literary genres from various critical perspectives. Particular attention given to the novel, poetry, and essay of the 20th Century and to interrelationships between text and culture.

**5320. TOPICS IN SPANISH LINGUISTICS (3-0).** Special studies in linguistics not ordinarily covered by regular course offerings. May be repeated for credit when content changes.

**5327. WOMEN IN HISPANIC LITERATURE (3-0).** Readings of literary texts by women writers from medieval Spain to contemporary Spanish America. Attention to recurrent motifs as well as to the literary expression of historical and cultural transformation.

**5330. ADVANCED STUDIES IN SPANISH LINGUISTICS I (3-0).**

Topics may include: sociolinguistics, bilingualism, modern Spanish dialectology, as well as a detailed study on any one dialect or regional dialect of contemporary Spanish. May be repeated for credit when content changes.

**5332. ADVANCED STUDIES IN SPANISH LINGUISTICS II (3-0).**

Topics may include: Old Spanish, Spanish philology, Spanish text linguistics, and Old Spanish dialectology, as well as a detailed study of any one dialect or regional dialect of Spanish. May be repeated for credit when content changes.

**5391. CONFERENCE COURSE IN SPANISH LINGUISTICS AND LITERATURE.** Graded R.

**5398, 5698, 5998. THESIS.** 5398 graded R/F only; 5698 and 5998 graded P/F/R. Prerequisite: permission of Graduate Advisor.

A topics course may be repeated for credit when the topic changes.

# Department of Music

[www.uta.edu/music](http://www.uta.edu/music)

## Area of Study and Degrees

Music Education

M.M.

Music Performance

Certificate

## Master's Degree Plans

Thesis and Non-Thesis

### Chair

Larry Wiley

101 Fine Arts, 817-272-3471

[wiley@uta.edu](mailto:wiley@uta.edu)

## Graduate Advisor for Admissions

Elizabeth Morrow

101 Fine Arts, 817-272-2432

[emorrow@uta.edu](mailto:emorrow@uta.edu)

## Graduate Advisor for Program Studies

Rick Stamer

248 Fine Arts, 817-272-3916

[stamer@uta.edu](mailto:stamer@uta.edu)

## Graduate Faculty

Professor

Ling-Tam, Powell

## Associate Professors

Bogle, Chave, Morrow, Wiley

## Assistant Professors

Espinosa, Hunt, Lange, Stamer

## Objectives

The Master of Music in Music Education curriculum is designed to impart the knowledge needed to facilitate successful careers and encourage personal development. Through further education, music teachers will become more articulate, reflective practitioners so that they are able to select, adapt, adjust, and assess teaching and learning expectations.

More specifically, the aims of the degree are to:

- improve teaching skills through advanced coursework and research;
- offer graduate courses to improve general musicianship, including performance, theory, and music history;
- prepare students to enter graduate programs leading to the doctoral degree;
- offer highly specialized courses for students interested in researching historical, education or artistic areas;
- provide advanced courses for qualified members of the community.

The intention of the Certificate in Performance is to provide graduate level instruction to performers interested in professional development. Specific outcomes of the program include improving the technical ability of performers, raising artistic performance level, and expanding repertoire, including excerpt work for orchestra instrumental majors.

## Degree Requirements

### Master of Music in Music Education

The program is designed for the student who has a bachelor's degree in music or its demonstrated equivalent and wishes to enhance knowledge in the field of music education. The Graduate Advisor for program studies will counsel the student in correcting deficiencies and selecting courses for the student's degree program. A minimum of 30 semester hours is required if the student chooses to write a thesis. If the student chooses not to write a thesis, a minimum of 36 semester hours is required. Advisory examinations in music history and written theory will be administered to all students prior to enrollment or during their first semester as a degree-seeking student.

Coursework for the program includes 15 core hours: Form and Style Analysis (MUSI 5301); one class from Selected Topics in Music History (MUSI 5308); Philosophical Foundations of Music Education (MUSI 5351); and Psychological Foundations of Music Education (MUSI 5352); and Research in Music Education (MUSI 5363). Students following the thesis option will take three hours of music education electives and an additional six hours of free electives. Students following the non-thesis option will take six hours of music education electives and an additional 12 hours of free electives.

Music education electives may be chosen from the following: Selected Topics in Music Pedagogy (MUSI 5350); Selected Topics in Music Literature (MUSI 5354); Rehearsal Techniques/Conducting (MUSI 5355); Advanced Marching Band Techniques (MUSI 5356); Advanced Diction for Singers (MUSI 5359); Advanced Technology for Musicians (MUSI 5350); Elementary Music (MUSI 5361); and Historical Foundations and Curricular Trends in Music Education (MUSI 5364). Free electives may be selected from ensembles, private instruction, music history, music theory, jazz studies and repeated special topics courses. Up to six hours of graduate credit from other



disciplines may be considered if relevant to the degree, subject to approval by the Graduate Studies Committee. Students following the non-thesis option will enroll in at least one semester of Project in Music Education (MUSI 5353). Students who choose to write a thesis (MUSI 5398, 5698) will work closely with one or more members of the graduate faculty from the Department of Music on a research project in a specialized area of interest within the music education field.

### Certificate in Performance

The Certificate in Performance requires 15 hours of coursework: nine hours of applied study (MUSI 5392), a three-credit-hour recital (MUSI 5391) and three hours of electives that may include participation in departmental ensembles/keyboard accompaniment (MUSI 5191/5170) or instruction in literature, pedagogical studies or orchestral excerpts (MUSI 5354/5350/5391).

## Admission

The Department of Music has the following requirements for entry into the Master of Music in Music Education Degree.

### Unconditional Admission

Requirements for unconditional admission into the program are:

- Three letters of recommendation speaking to the student's potential for success from references familiar with the student's academic background.
- A minimum 3.0 GPA in the last 60 hours of undergraduate work as calculated by the Graduate School.
- Bachelor's degree in music or its demonstrated equivalent (such as a music conservatory degree, a bachelor's degree in some other discipline with substantial undergraduate hours in music, etc.)

All admission criteria will be considered equally. Students meeting all three criteria will be granted automatic unconditional admission.

### Probationary Status

A student meeting two out of three criteria and showing promise for successful graduate study may still be admitted on probationary status upon the recommendation of the Graduate Studies Committee. Within probationary status, said student will be admitted unconditionally into the degree program upon completion of 12 hours of graduate study with no grade lower than a B.

### Provisional Admission

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

### Deferred Admission

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

Admission will be denied for students not meeting at least two of the three criteria. Applicants may reapply for admission if the deficiencies in credentials that led to denial are remedied.

### Certificate Admission Requirements

Students wishing to enroll only in the certificate program but not a graduate degree program may apply for admission to U.T. Arlington as a special student (non-degree seeking). Admission requires a bachelor's degree or equivalent and would be contingent upon an audition for a minimum of two faculty members; GRE scores and letters of recommendation are not required. Students in this certificate program who later seek graduate degrees at U.T. Arlington may apply 12 hours of certificate coursework within six years of completion and award of the certificate, if they meet the admission requirements for the graduate degree and receive approval from the appropriate Graduate Studies Committee and the Dean of Graduate Studies. Admission as a special student in no way guarantees subsequent unconditional admission into a graduate program or into the Graduate School.

### Fellowships

Fellowships, when available, will be awarded on a competitive basis. Nominees for the Graduate School Master's Fellowship in Music will be selected based on the following criteria:

- Candidates must be new students entering in the fall semester, with a minimum of 6 hours of enrollment in both long semesters to retain their fellowships.
- The minimum undergraduate GPA requirement is 3.00, as calculated by the Graduate School, plus a GPA of 3.0 for any graduate credit hours.
- Transcript of a completed bachelor's degree in music from an accredited institution (or its demonstrated equivalent).
- Three letters of recommendation
- A written statement explaining the applicant's reasons for graduate study in music.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Music (MUSI)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5170. ENSEMBLE PERFORMANCE (1-0).** All vocal and instrumental ensembles. The schedule of classes indicates by section numbers which ensembles are offered each semester.

**5191, 5291, 5391. CONFERENCE COURSE IN MUSIC**  
Prerequisite: permission of instructor and Graduate Advisor.

**5192, 5292, 5392. APPLIED LESSONS (0-1), (0-2), (0-3).** This course provides private instruction in strings, woodwinds, brass, percussion, keyboard, or voice. This course may be repeated for credit as often as course content changes.

**5250. ADVANCED TECHNOLOGY FOR MUSICIANS (2-0).** Intensive and extensive student-centered study topics to be selected from MIDI sequencing, multimedia development, advanced music notation, and digital sampling and synthesis.

**5301. FORM AND STYLE ANALYSIS (3-0).** A survey of the forms and styles of Western art music employing relevant analytical techniques.

**5308. SPECIAL TOPICS IN MUSIC HISTORY (3-0).** This course will consist of an in-depth study of a particular genre or composer. It may be repeated as the course content changes.

**5330. SELECTED TOPICS IN THEORY/COMPOSITION (3-0).** This course covers topics which vary from semester to semester and includes in-depth studies of the historical and acoustical foundations of music theory. This course may be repeated for credit as often as the content changes.

**5331. PEDAGOGY OF THEORY (3-0).** Detailed study of methods, techniques, and materials for teaching music theory.

**5350. SELECTED TOPICS IN MUSIC PEDAGOGY (3-0).** This course covers topics which vary from semester to semester and includes studies of teaching techniques applied to pre-K, elementary grades, the junior high school, the high school, the junior college, and the college or university. This course may be repeated for credit as often as the content changes.

**5351. PHILOSOPHICAL FOUNDATIONS OF MUSIC EDUCATION (3-0).** Study in the philosophy and historical background of music education and examination of current instructional trends.

**5352. PSYCHOLOGICAL FOUNDATIONS OF MUSIC EDUCATION (3-0).** A study of the psychological foundations of music education. An investigation of topics such as perception of and responses to music, the future of musical attributes, music learning, and the measurement of musical behavior.

**5353. PROJECT IN MUSIC EDUCATION (3-0).** For students enrolled in the non-thesis option. Offers the opportunity to complete a professional project in music education relevant to the student's background, interest, and/or needs. The project should include, but

no necessarily be limited to, appropriate written documentation. May be repeated for credit, but not more than 3 hours will apply to the Master of Music degree. Enrollment is required each term in which the project is in progress.

**5354. SELECTED TOPICS IN MUSIC LITERATURE (3-0).** This course covers topics which vary from semester to semester and include studies in musical literature for the following: 1) Wind Band Literature; 2) Orchestral Literature; 3) Choral Literature; 4) World Music Literature; 5) Jazz Literature. This course may be repeated for credit as often as the content changes.

**5355. REHEARSAL TECHNIQUES/CONDUCTING (3-0).** A study of rehearsal techniques, including tone development, phrasing, rehearsal score study, and rehearsal organization. Topics are 1) Choral; 2) Instrumental; 3) Jazz. May be repeated for credit when topics vary. Topics may be taken concurrently.

**5356. ADVANCED MARCHING BAND TECHNIQUES (3-0).** A detailed study of show planning, arranging, drill design, and rehearsal techniques for the contemporary marching ensemble.

**5359. ADVANCED DICTION FOR SINGERS (3-0).** A study of performance diction for singers and the pronunciation of the language as it applies to public performance. Topics include English, French, Italian, and German. May be repeated for credit when topics vary.

**5360. ADVANCED TECHNOLOGY FOR MUSICIANS (3-0).** Intensive and extensive student-centered study topics to be selected from MIDI sequencing, multimedia development, advanced music notation and digital sampling and synthesis.

**5361. ELEMENTARY MUSIC (3-0)** A study of current methods and materials used in teaching elementary music. Classroom instruments are also studied.

**5363. RESEARCH IN MUSIC EDUCATION (3-0).** An introduction to historical, philosophical, descriptive, and experimental research in music education, and present research practices in music education.

**5364. HISTORICAL FOUNDATIONS AND CURRICULAR TRENDS IN MUSIC EDUCATION (3-0).** A study of the historical foundations of music education and curricular trends that provide the context for contemporary music education.

**5393. CONDUCTING (3-0).** Applied lessons in conducting. This course is an in-depth study of conducting technique as applied to choral and instrumental ensembles. It may be repeated for credit as the content changes. Prerequisite: 2 undergraduate courses in conducting or the equivalent in practical experience.

**5398. THESIS (3-0).** The graduate student must be registered for 5398 when in consultation over the thesis with the advisor or supervisory committee.

**5698. THESIS (6-0).** The graduate student must be registered for 5698 in the semester or term in which the Master of Music degree will be conferred. Prerequisite: MUSI 5398 and permission of the graduate advisor in music.

## Objective

The graduate course offerings in philosophy and classics are provided to support other graduate programs, particularly those in Humanities and in the Social Sciences, and to meet the expressed needs of students. The courses are designed to provide the theoretical background necessary to the complete understanding and use of professional skills in these areas. No program leading to a graduate degree in philosophy exists at this time. Philosophy is a possible area of concentration in the Graduate Humanities Program.

## Philosophy (PHIL)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

- 5391. CONFERENCE COURSE IN PHILOSOPHY.** May be taken only with the permission of the instructor and the Graduate Advisor.
- 5392. TOPICS IN THE HISTORY OF PHILOSOPHY (3-0).** Consideration in depth of the work of a single philosopher or a related philosophical school against the background of the development of philosophy. May be repeated for credit as the topic changes.
- 5393. PHILOSOPHICAL PERSPECTIVES ON THE HUMANITIES (3-0).** A philosophical inquiry into problems and issues of relevance in humanistic disciplines. May be repeated for credit as the topic changes.

## Greek (GREK)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

- 5391. CONFERENCE COURSE IN GREEK.** May be taken only with the permission of the instructor and the Graduate Advisor.

## Latin (LATN)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

- 5301. INTENSIVE LATIN FOR READING I (3-0).** Covers approximately the same material as LATN 1441/1442 (Levels I and II).
- 5302. INTENSIVE LATIN FOR READING II (3-0).** Covers approximately the same material as LATN 2313/2314 (Levels III and IV).
- 5391. CONFERENCE COURSE IN LATIN.** May be taken only with the permission of the instructor and the Graduate Advisor.

## Classics (CLAS)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

- 5392. TOPICS IN CLASSICAL STUDIES (3-0).** Studies in the social, political and cultural systems of the ancient Greeks and Romans, including their influence upon subsequent societies. May be repeated for credit as the topic changes.

## Department of Philosophy and Humanities

[www.uta.edu/philosophy](http://www.uta.edu/philosophy)

Area of Study and Degrees  
Humanities

M.A.  
(See Program in Humanities)

### Chair

Denny Bradshaw  
305 Carlisle Hall, 817-272-2774

### Graduate Faculty

#### Associate Professors

Baker, Bradshaw, Burgess-Jackson,  
Chiasson, Nussbaum, Reeder

# Department of Political Science

[www.uta.edu/pols/pols.htm](http://www.uta.edu/pols/pols.htm)

## Areas of Study and Degrees

### Political Science

M.A.

### Public Administration

M.P.A.

(See School of Urban and Public Affairs)

### Humanities

M.A.

(See Program in Humanities)

## Master's Degree Plans

Thesis and Non-Thesis

### Chair

Dale Story

206 University Hall, 817-272-2991

### Graduate Advisor

Mark Cichock

410 University Hall, 817-272-3995

### Graduate Faculty

#### Professors

Cichock, Cole, Hekman,  
Marshall, Story

#### Associate Professors

Clark, Deen, Farrar-Myers,  
Garcia y Griego, Gutierrez,  
Ignagni, Knerr, Moon,  
Moore, Simowitz

## Objective

The program leading to a Master of Arts degree in Political Science emphasizes preparation for service in many areas of our national life, both public and private. Students interested in careers in teaching and research or in leadership roles in the public or private sectors may pursue programs adapted to their individual objectives. The Department of Political Science endeavors to equip students with the research techniques and substantive background for coursework undertaken beyond the master's level. Particular attention is given to newer methodologies and approaches employed by scholars in the field.

## Admissions and Fellowship Criteria

The program is committed to a holistic admissions approach. As a result, admissions criteria include: grade point averages, letters of recommendation, personal statements, advanced degrees, leveling courses, graduate courses taken as a degreed student or in another program, and professional work experience. The major purpose of the admissions criteria is to promote access to our program, but maintain standards that will enable the department to determine if the applicant demonstrates the requisite skill level to master the requirements of the program.

Applicants are required to submit an official transcript(s), three (3) letters of recommendation, and a personal statement, and have taken a minimum of 18 hours of political science classes. The department will review the application package in its entirety. The package is evaluated to determine if a student has achieved a 3.0 grade point average (GPA) in the last 60 hours of their undergraduate work as calculated by the Graduate School, and meets other admission requirements. If a student has already earned an advanced degree, the department will evaluate the student's academic performance in obtaining that degree equally with the undergraduate performance. International students must meet the standard (550) on the TOEFL examination.

Given the above standards, the department has established the following guidelines regarding admission status:

- 1) If the GPA is 3.00 or greater and the remainder of the application package is satisfactory, then the student would be admitted to our graduate program unconditionally.
- 2) If the GPA is between 2.70 and 2.99 and the remainder of the application package is satisfactory, then the student would be admitted to our graduate program on probationary status (discussed below).
- 3) If the GPA is between 2.00 and 2.69, the student was an undergraduate political science major with a GPA in political science classes of 3.00 or greater, and the remainder of the application package is satisfactory, then the student would be admitted to our graduate program on probationary status (discussed below).
- 4) If the GPA is between 2.00 and 2.69, the student does not satisfy the criteria set forth in the clause (3) above, and the remainder of the application package is satisfactory, then the student's admission decision will be deferred and he/she will be required to take leveling classes (discussed below).

## Deferral and Denial

Students with unsatisfactory admissions materials (regardless of GPA) will be deferred until they provide satisfactory materials. If they do not do so, they will be denied admission.

### Minimum 18 Undergraduate Hours in Political Science

Students without 18 undergraduate hours in political science or the equivalent (as determined by the Graduate Advisor) will be required to take undergraduate courses to meet this deficiency. Once they complete these courses satisfactorily, students will be admitted on probation. Courses must be approved by the Graduate Advisor and only courses with a "B" or better will count toward this requirement. These courses will not count toward a graduate degree. Students who do not complete the 18-hour (or equivalent) requirement with the required grades will be denied admission.

### Provisional Admission

An applicant unable to supply all required documentation prior to the admission deadline, but who otherwise appears to meet admission requirements, may be granted provisional admission.

### Probationary Status

Being admitted on probationary status means that the student will be able to take graduate level classes in their first semester after being admitted, but must earn a grade of "A" or "B" in each class during their first 12 hours of graduate coursework in the department. This regulation will be strictly enforced.

### Grade Points 2.0-2.69

Students with a GPA of 2.0 to 2.69 and who were undergraduate political science majors with a GPA in political science classes of 3.0 or better will be admitted on probation.

All others who have an overall GPA between 2.0 and 2.69 will have their admission deferred and be required to take up to 18 hours of undergraduate leveling courses approved by the Graduate Advisor. Students must complete each of these courses with a grade of "B" or better or they will be denied admission. This option involves considerable time and cost for a student, and none of the courses will be counted toward a graduate degree. Students are responsible for contacting the Graduate Advisor regarding this option and seeking prior approval for courses taken at U. T. Arlington or another university. If a student drops a leveling course, he/she must re-enroll and complete the course. No substitute courses will be approved. Students are responsible for gaining admission to the program to take leveling courses. If a student successfully completes the leveling course requirement, admission to the graduate program will be probationary. If the student does not complete the leveling course requirement, admission will be denied.

### Fellowships

Fellowships, when available, will be awarded on a competitive basis. Nominees for the Graduate School Master's Fellowship in the Political Science master's program will be selected based on the following criteria:

- Candidates must be new students entering in the fall semester, with a minimum of 6 hours of enrollment in both long semesters to retain their fellowships.
- The minimum undergraduate GPA requirement is 3.00, as calculated by the Graduate School, plus a GPA of 3.0 for any graduate credit hours.
- Transcript of a completed bachelor's degree in Political Science (or appropriate related field) from an accredited institution.
- Three letters of recommendation. These letters may be the same submitted for admission.
- A written statement explaining the applicant's reasons for graduate study in Political Science.

## Degree Requirements

The thesis degree plan requires 24 hours of coursework including three hours of methods in Political Science for those who have not had POLS 3310 or its equivalent. Of the remaining 21 hours, at least one course each must be taken from four of the following six areas:

- Political Behavior and Processes—5300, 5311, 5391.
- Comparative Politics—5303, 5312, 5391.
- International Politics and Organization—5312, 5391.
- Public Law and Jurisprudence—5301, 5313, 5391.
- Public Administration and Policy Studies—5302, 5314, 5391.
- Political Theory (Thought and Methodology)—5310, 5391.

Students should consult the Political Science Graduate Student Handbook for regulations on transfer courses, undergraduate courses, conferences, internships, and special courses. It is recommended that students complete at least one general field seminar (5300, 5301, 5302, 5303) prior to taking the topics courses. See the Graduate Advisor for more detail.

The non-thesis degree plan requires a minimum of 36 hours, including three hours of methodology, and courses from four of the six areas.

All candidates for the degree of Master of Arts with a major in political science must pass a final comprehensive examination, written, oral, or both written and oral. The scope, content, and form of the examination will be determined by the student's supervising committee. In the event of failure of the final comprehensive examination, the student may petition the Committee on Graduate Studies to retake the examination on a date no sooner than 60 days after the first examination. Students will not be permitted more than one reexamination after failure of the initial examination.

### International Studies Option

The International Studies option of the Master of Arts program in Political Science emphasizes comparative politics and international politics within the framework of Political Science. This option requires courses from three of six areas of Political Science and 12 hours in comparative politics and/or international politics. Students must have three hours of a methods course.

### U.S. Political Institutions and Processes Option

The U.S. Political Institutions and Processes option of the Master of Arts program in Political Science emphasizes political behavior and processes and public law and jurisprudence within the framework of political science. This option requires courses from three of six areas of Political Science and 12 hours in political behavior and processes and/or public law and jurisprudence. Students must have three hours of a methods course.

## Master of Public Administration

The Department of Political Science participates in the interdisciplinary Master of Public Administration along with the School of Urban and Public Affairs (see the School of Urban and Public Affairs, Program in Public Administration).

## Dual Degree Program

Students in political science may participate in a dual degree program whereby they can earn a Master of Arts in political science and a Master of Arts in criminal justice. By participating in a dual degree program, students can apply a number of semester hours jointly to meet the requirements of both degrees, thus reducing the total number of hours which would be required to earn both degrees separately. The number of hours which may be jointly applied ranges from nine to 18 hours, subject to the approval of Graduate Advisors from both programs. To participate in the dual degree program, students must make separate application to each program and must submit a separate program of work for each degree. Those interested in a dual degree program should consult the appropriate Graduate Advisor(s) for further information on course requirements. See also the statement on "Dual Degree Programs" in the general information section of this catalog.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Political Science (POLS)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5100. MASTER'S COMPREHENSIVE EXAMINATION.** Required of all non-thesis Master of Arts students in the semester of their graduation. Graded P/F/R.

**5300. U.S. NATIONAL POLITICAL INSTITUTIONS (3-0).** This course focuses on the politics, processes and policies of American politics and is designed to expose students to a variety of topics and approaches. This course will be a survey of several subfields within American politics, including the presidency, Congress, courts, elections and voting behavior, public opinion, parties and interest groups.

**5301. CONTEMPORARY JUDICIAL POLITICS AND BEHAVIOR (3-0).** Process and decision-making of the American judiciary with emphasis on contemporary constitutional issues.

**5302. TRENDS IN PUBLIC ADMINISTRATION AND POLICY MANAGEMENT (3-0).** Recent literature in organizational theory, government restructuring, and policy management problems.

**5303. COMPARATIVE POLITICAL SYSTEMS (3-0).** Theories and concepts relating to the scope of comparative politics and methods of comparing various aspects of the political system.

**5310. TOPICS IN THEORY AND METHODOLOGY (3-0).** Empirical and normative theories for political analysis. 1. Empirical Theory and Research Methods 2. Normative Theory. (May be repeated for credit when topics vary.)

**5311. TOPICS IN U.S. NATIONAL POLITICS: INSTITUTIONS, PROCESS AND BEHAVIOR (3-0).** This course will focus on the specific aspects of the U.S. national governing institutions, processes, and behavior. A single aspect of U.S. politics will be examined in a given semester. Topics include the following: (May be repeated for credit when topics vary.) 1. Campaigns and Elections 2. Public Opinion 3. Parties and Interest Groups 4. Ethnic Groups and the Nation State 5. Women in the Political Process 6. Congressional Behavior 7. The Presidency 8. Separation of Powers 9. Special topics in the Presidency 10. Special topics in U.S. National Politics.

**5312. TOPICS IN COMPARATIVE POLITICS AND INTERNATIONAL RELATIONS (3-0).** Treatment of emerging and established nations, U.S. foreign policy and international relations. (May be repeated for credit when topics vary.) 1. Political Systems of Russia and Eastern Europe 2. The Politics of Asia and the Far East 3. The Politics of Constitutional Democracies 4. Latin American Politics 5. U.S.-Mexico Relations 6. U.S. Immigration Policy 7. Theories of International Conflict 8. Special Topics in Comparative Politics 9. Special Topics in International Relations.

**5313. TOPICS IN PUBLIC LAW AND JURISPRUDENCE (3-0).** The role of U.S. national and state courts in policy making, constitutional law, and the examination of the evolution and nature of law in the United States. (May be repeated for credit when topics vary.) 1. U.S. Supreme Court 2. Civil Rights and Liberties 3. Federalism 4. American Legal System 5. State Court Systems 6. Special Topics in Public Law.

**5314. TOPICS IN PUBLIC ADMINISTRATION AND POLICY MAKING (3-0).** U.S. national policy making and program management, state and urban policy making and administration. (May be repeated for credit when topics vary.) 1. Public Budgeting and Fiscal Policies 2. Energy and Environmental Politics and Policy 3. Health Care Politics and Policy Making 4. Public Policy Analysis 5. State and Local Politics and Policies (also offered as URPA 5204; credit will be granted only once) 6. Urban Administration 7. The Politics of Governmental Reform 8. U.S. Public Policy and the Mexican-American Community 9. Special Topics in Policy Making.

**5391. CONFERENCE COURSE IN POLITICAL SCIENCE.** Research and reading in a specialized field under the direction of a member of the graduate faculty. Graded P/F/W.

**5398, 5698. THESIS.** Original research designed to augment existing studies of problems or topics related to one of the major fields of study. 5398 graded R/F only; 5698 graded P/F/R.

## Objectives: M.A. in Sociology

The Master of Arts program in sociology is designed to provide students with a firm substantive background in sociological theory and in the techniques of contemporary research methodology and statistical analyses. In addition to these core concerns, the program offers a variety of seminars, as well as practicum opportunities, to help prepare students for a wide range of professional careers in both the private and public sectors or continued graduate education at the Ph.D. level.

## Admission Requirements: Sociology

Applicants must apply for admission through, and supply all information required by, the Graduate School. The Sociology Graduate Advisor, in consultation with other members of the faculty, decides on each applicant.

All of the following criteria will be considered in determining program admission status:

1. undergraduate grade point average
2. Graduate Record Exam (GRE) scores
3. letters of recommendation from faculty
4. preparation in sociology and satisfactory performance in sociology courses and/or courses in related disciplines
5. statement of interest in graduate study in sociology

## Criteria for Unconditional Admission

For unconditional admission, the student must satisfy each of the following criteria.

1. Minimum GPA of 3.0, as calculated by the Graduate School.
2. Preferred GRE score of 500 on the verbal and 500 on the quantitative.
3. Satisfactory letters of recommendation.
4. Adequate preparation in sociology and satisfactory performance in sociology courses and/or those in related disciplines.
5. Satisfactory statement of interest in graduate study in sociology.

## Criteria for Probationary Admission

Students who do not qualify for unconditional admission may be admitted on probation if they satisfy any 4 of the 5 criteria for unconditional admission.

Those entering the program under probationary status will be granted unconditional admission only after completing 12 hours of graduate courses, approved by the Graduate Advisor, earning no grade below a B.

## Provisional Admission

An applicant unable to supply all required information prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

## Deferred Admission

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

## Department of Sociology and Anthropology

[www.uta.edu/sociology-anthropology](http://www.uta.edu/sociology-anthropology)

### Areas of Study and Degrees

Sociology

M.A.

Anthropology

M.A.

Humanities

M.A.

(See Program in Humanities)

### Master's Degree Plans

Thesis and Thesis Substitute (Anthropology only)

Thesis and Non-Thesis (Sociology only)

### Chair

Robert L. Young

430 University Hall, 817-272-2661

### Associate Chair

Joseph W. Bastien

430 University Hall, 817-272-2661

### Graduate Advisors

Sociology

Beth Anne Shelton

430 University Hall, 817-272-2661

Anthropology

Shelley Smith

430 University Hall, 817-272-2661

### Graduate Faculty

Professors

Agger, Bastien, Eve, Petruso,

Reed-Danahay, Shelton,

Weed, Williams, Young

Associate Professors

Dunn, Rouse, Smith

Assistant Professors

Brown, Kunovich,

McBrier, Zolniski

### Denied Admission

Applicants who do not satisfy the requirements for any of the aforementioned forms of admission will not be admitted.

### International Students

To qualify for admission, international students must score 550 or above on the TOEFL.

### UTA Sociology Undergraduate Majors

Sociology students who completed their undergraduate degree in Sociology at U.T. Arlington with a 3.0 overall GPA, a 3.0 GPA in advanced hours, a B or better in SOCI 4311, SOCI 3352 and SOCI 3305, and satisfactory letters of recommendation from U.T. Arlington faculty qualify for automatic unconditional admission, pending submission of all required materials.

## Graduate Assistantships and Fellowships in Sociology

Graduate teaching and research assistantships, fellowships and other forms of financial support will be awarded on a competitive basis. In addition to performance in any graduate courses the student may have taken, the same criteria used to determine admission status will be used in evaluating applications for such awards. No single factor, including standardized test scores, will be used to end consideration of any graduate assistantships or fellowships.

Nominees for the Graduate School Master's Fellowship in Sociology will be selected based on the following criteria:

1. Candidates must be new students entering in the fall semester, with a minimum of 6 hours of enrollment in both long semesters, to retain their fellowships.
2. The minimum undergraduate GPA requirement is 3.0, as calculated by the Graduate School, plus a GPA of 3.0 for any graduate credit hours.
3. Transcript of a completed bachelor's degree in sociology (or appropriate related field) from an accredited institution.
4. Three letters of recommendation.
5. A written statement explaining the applicant's reasons for graduate study in sociology.

## Degree Requirements: Sociology

Students may select from two options: the thesis or non-thesis degree plan.

**Thesis Option:** Satisfactory completion of a minimum of 24 hours of coursework, including core courses in theory, methods, and statistics, plus the six hour thesis.

**Non-Thesis Option:** Satisfactory completion of a minimum of 36 hours of coursework, of which at least 24 hours must be in the major area(s) of study, including core courses in theory, methods, and statistics, and SOCI 5385.

All candidates for the degree Master of Arts with a major in sociology must pass a final examination. For thesis candidates, it is the oral examination on the completed thesis. For non-thesis candidates, it is a comprehensive examination, the scope, content and form of which shall be determined by the student's supervising committee.

## Dual Degree Program

Students in sociology may participate in one of two dual degree programs whereby they can earn a Master of Arts in Sociology and a (1) Master of Public Administration or (2) Master of Science in Social Work. By participating in a dual degree program, students can apply a number of semester hours jointly to meet the requirements of both degrees, thus reducing the total number of hours which would be required to earn both degrees separately. The number of hours which may be jointly applied ranges from nine to 18 hours, subject to the approval of graduate advisors from both programs.

To participate in the dual degree program, students must make a separate application to each program and must submit a separate Program of Work for each degree. Those interested in a dual degree program should consult the appropriate graduate advisor(s) for further information on course requirements. Students wishing to pursue dual degree programs other than those specifically defined in the catalog should contact the Graduate School for details. See also the entry on Dual Degree Programs in the Advanced Degrees and Requirements section of this catalog.

## Objectives: M.A. in Anthropology

The Anthropology M.A. program offers students a well-integrated curriculum in cultural anthropology, archaeology, and biological anthropology. It is intended both (1) for students who wish to prepare for admission to an anthropology Ph.D. program at another university, and (2) for those who wish to learn anthropological skills and perspectives to enhance their careers (in education, the helping professions, or other fields) in an increasingly diverse society.

Students may choose between a thesis option (30 credit hours), recommended for those planning to go on to a Ph.D. program, and a non-thesis option (36 credit hours, ordinarily including a three-hour practicum and ANTH 5370).

## Admission Requirements: Anthropology

The Graduate Advisor, in consultation with the rest of the Graduate Anthropology Faculty, determines the admission status of each applicant. No single criterion will either guarantee or deny acceptance into the program. Applicants must apply for admission through and supply all information required by the Graduate School.

The following information will be considered in determining program admission status:

1. Undergraduate Grade Point Average (GPA).
2. The verbal and quantitative portions of the Graduate Record Exam (GRE).
3. Three letters of recommendation, at least two of which must be from academic faculty.
4. Performance in anthropology classes as well as general academic performance.
5. Statement of purpose as it applies to specific interests in anthropology.
6. Writing sample (preferably an undergraduate research paper).



### Criteria for Unconditional Admission

1. Minimum GPA of 3.0 for last 60 hours of undergraduate coursework.
2. Acceptable GRE scores; experience has shown that successful students have a verbal GRE score of 500 or higher and a quantitative GRE score of 500 or higher.
3. Acceptable letters of recommendation.
4. Acceptable statement of purpose.
5. Acceptable writing sample
6. Successful completion of ANTH 2307, ANTH 2322, and ANTH 2339 or the equivalents thereof.

Note: For students with a B.A. in anthropology from UTA, Unconditional Admission may be granted without the GRE if the following conditions are all met:

1. Minimum GPA of 3.0 overall.
2. Minimum GPA of 3.0 for last 60 hours of undergraduate coursework.
3. Minimum GPA of 3.5 in anthropology major courses.
4. Grades of A or B in 2307, 2322, and 2339.
5. Acceptable letters of recommendation.
6. Acceptable statement of purpose.
7. Acceptable writing sample.

### Criteria for Probationary Admission

1. Minimum GPA of 3.0 for last 60 hours of undergraduate coursework.
2. Acceptable letters of recommendation.
3. Acceptable statement of purpose.
4. Acceptable writing sample.
5. Successful completion of at least two of ANTH 2307, ANTH 2322, and ANTH 2339 or the equivalents thereof.

Students admitted in probationary status must complete 12 hours of graduate work with no grade less than a B. Students who lack one of the three required 2000-level courses will enter in probationary status and must successfully complete the final 2000-level class during the first semester of probationary enrollment; the following semester they will achieve unconditional status if they meet the criteria listed above for unconditional admission.

### Provisional Admission

Students are to be admitted provisionally only in cases where official documents are in process and unofficial ones are available. Applicants must meet all conditions of either unconditional or probationary admission status.

### Decision on Admission Deferred

In cases of incomplete applications or in cases in which the applicant does not meet the criteria for other admission categories but nonetheless is judged by the Graduate Anthropology Faculty to show promise, a decision on admission may be deferred, with instructions provided to the student indicating the course of action to be taken prior to subsequent review.

### Denial of Admission

Applicants who do not satisfy all the criteria for any of the above categories will be denied admission.

### International Students

In addition to the above requirements, International Students need to have a minimum TOEFL score of 550.

## Graduate Assistantships and Fellowships in Anthropology

Graduate teaching and research assistantships, fellowships, and other forms of financial support will be awarded on competitive basis. No single factor will be used as the basis for these awards; rather candidates' records will be evaluated in their entirety and support will be awarded to the best candidates based on the collective judgment of the Graduate Anthropology Faculty.

Nominees for the Graduate School Master's Fellowship in Anthropology will be selected based on the following criteria:

1. Candidates must be new students entering in the fall semester, with a minimum of 6 hours of enrollment in both long semesters to retain their fellowships.
2. The minimum undergraduate GPA requirement is 3.0, as calculated by the Graduate School, plus a GPA of 3.0 for any graduate hours.
3. Transcript of a completed bachelor's degree in Anthropology (or appropriate related field) from an accredited institution.
4. Three letters of recommendation.
5. A written statement explaining the applicant's reasons for graduate study in Anthropology.
6. The writing sample provided with the application to the program.

## Degree Requirements: Anthropology

**Thesis Option:** Satisfactory completion of a minimum of 30 credit hours. Program must include 1) ANTH 5310; 2) ANTH 5351; 3) a 3 hour statistics course at either the graduate or undergraduate level, as specified by the student's committee; 4) 6 hours of methods (including ANTH 5315 or ANTH 5320, and ANTH 5325 or ANTH 5363; 5) 6 hours of thesis.

**Thesis Substitute Option:** Satisfactory completion of a minimum of 36 credit hours. Program must include 1-4 above, ANTH 5370, and ANTH 5371.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Sociology (SOCL)

Enrollment in graduate courses in sociology requires admission to the Graduate School or permission of the instructor.

Detailed descriptions of individual courses are available in the main office, Department of Sociology and Anthropology, 430 University Hall, Box 19599, or visit [www.uta.edu/sociology-anthropology](http://www.uta.edu/sociology-anthropology).

### Core Courses

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5301. SOCIOLOGICAL THEORY (3-0).** A comprehensive review, analysis, and evaluation of the dominant conceptual perspectives, and their proponents, in sociological theory.

**5303. RESEARCH DESIGN (2-2).** Seminar on the design, plan, structure, and strategies of contemporary social research. Examines the interrelationships of theory, methods, and statistics along with the problems of measurement, sampling, scaling techniques, and the presentation of statistical data. Prerequisite: three hours of undergraduate research methods.

**5304. SOCIAL STATISTICS (2-2).** Examines a variety of statistical methods including analysis of variance and covariance, multivariate regression models, multiple and partial correlations, factor analysis, and other contemporary parametric and nonparametric techniques. Emphasis is on the application of these methods to social science data. Prerequisite: three hours of undergraduate statistics.

### Seminars

**5310. SEMINARS IN SOCIAL PSYCHOLOGY (3-0).** Introduction and discussion of theoretical and methodological perspectives in social psychology. Focusing on particular domains of social life, these seminars examine fundamental processes of social interaction and the influence of social situations and social experience on the thought, feeling, and behavior of individuals. (May be repeated for credit when topics vary.)

1. Perspectives in Social Psychology
2. Intercultural Communication
3. Socialization
4. Deviant Behavior
5. Self and Social Interaction
6. Special Seminars in Social Psychology

**5319. SEMINARS IN SOCIAL INSTITUTIONS AND CHANGE (3-0).** Seminars in this area are concerned with the structure and change of the basic elements of society that represent ordered and regulated aspects of social life. Also examined are collective behavior and social movements which result from instability in institutional arrangements and represent efforts to enact social change. (May be repeated for credit when topics vary.)

1. Sociology of Family
2. Sociology of Education
3. Sociology of Work and Occupations
4. Formal Organizations
5. Social Movements
6. Social Change and Development
7. Science, Knowledge, and Technology
8. Sociology of Medicine and Health Care
9. Special Seminars in Social Institutions and Change

**5330. SEMINARS IN SOCIAL DIFFERENTIATION (3-0).** In all human societies, perceptions of differences in individuals, social positions and groups arise and form a basis for social evaluation. Seminars in this area examine the processes involved in social differentiation, social evaluation, and resulting forms of social inequality. (May be repeated for credit when topics vary.)

1. Stratification/Inequality
2. Gender and Society
3. Minorities
4. Aging
5. Population and Environment
6. Special Seminars in Social Differentiation

**5341. SEMINARS IN THEORY AND RESEARCH METHODS (3-0).** Research methods seminars address a variety of issues related to quantitative and qualitative approaches to data collection and analysis. Theory courses offer extended treatment of topics in theory and theory construction, reflecting systematic efforts to understand the nature and operation of human society and social behavior. (May be repeated for credit when topics vary.)

1. Methods of Demographic Research
2. Evaluation Research
3. Qualitative Research Methods
4. Advanced Social Statistics
5. Theory Construction
6. Critical Theory
7. Special Seminars in Theory and Research Methods

### Individual Study

**5385. NON-THESIS PROJECT.** The topic and scope of the written project must be approved by the three graduate faculty members who will serve on the final Supervising Committee. A final oral presentation of the project is required. Graded P/F/R.

**5388. RESEARCH PRACTICUM/INTERNSHIP (3-0).** Graded P/F/R.

**5389. TEACHING SOCIOLOGY (3-0).** To learn strategies of coping with practical problems of teaching undergraduate sociology, students assist one or more professors in lecture preparation, grading, and examination construction. Not to be counted toward the degree requirement. Graded P/F/R.

**5392. CONFERENCE COURSE IN SOCIOLOGY.** Graded P/F/R.

**5398, 5698. THESIS.** 5398 graded R/F only; 5698 graded P/F/R.

## Anthropology (ANTH)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5307. FORENSIC ANTHROPOLOGY (3-0).** Estimating age, sex, race, stature, pathology, cause of death, and time since death from human remains. The role of skeletal biology and physical anthropology in criminal investigation. Case studies will be used to demonstrate application of the methods studied.

**5310. HISTORY OF ANTHROPOLOGICAL THEORY (3-0).** This course is a critical examination of major theoretical trends in ethnological theory, from mid-19th century to the present.

**5315. ARCHAEOLOGICAL METHODS (3-0).** An examination of research methods and underlying theory in archaeology and their evolution since the era of European antiquarianism. Origins and

development of archaeology as a scholarly discipline. Emphasis on the period 1960-present; consideration of recent trends in analysis and reportage.

**5317. ARCHAEOLOGY OF EXPLORATION (3-0).** Archaeological evidence for travel in antiquity. Technology of travel (horse/camel, wheeled vehicles, boats) and related topics (navigation; development of trade and trade routes; nature of discovery, settlement and colonization in antiquity). Case studies drawn from ancient cultures of the Old World from the Stone Age through Medieval times.

**5320. METHODS IN BIOLOGICAL ANTHROPOLOGY (3-0).** This course covers several topical areas relevant to biological anthropologists specializing in human biology, including osteology and skeletal biology, skeletal maturation (both postcranial and craniofacial), growth and development from birth to biological maturity, and selected topics in forensics, anthropometry, physiology, nutrition, genetics, epidemiology, and demography.

**5325. QUALITATIVE METHODS (3-0).** Students do fieldwork in anthropology. Students practice participant observation, conduct an interview, collect a kinship chart, map blocks, collect life histories and participate in rituals. Course emphasizes methods of data collection, analysis/interpretation of data, and critical writing.

**5340. EUROPEAN CULTURE AND SOCIETY (3-0).** An exploration of anthropological studies of both Western and Eastern Europe. Traces the history of ethnography in Europe, from early community studies to recent work on institutions and political structures. Themes of cultural identity, nationalism, gender, and class will be addressed.

**5342. ADVANCED ETHNOLOGY (2-2).** Seminar based on student reports and critiques of assigned readings. Major emphasis on the areas of ethnology and social anthropology.

**5343. HUMAN ECOLOGY (3-0).** A critical examination of the application of models, theories, and concepts of human ecology in cultural anthropology and human adaptation.

**5344. CULTURES OF LATIN AMERICA (3-0).** An ethnological comparison of societies and cultures in Central and South America. Emphasis on gender, ethnicity, and political economy.

**5345. RELIGION AND CULTURE (3-0).** An ethnological comparison of native religions to understand non-western belief systems. Emphasis on rituals, myths, totemic systems, taboos, and cosmology.

**5349. TOPICS IN ANTHROPOLOGY (3-0).** May be repeated for credit as the topic changes.

**5351. EMERGENCE OF HUMANKIND (3-0).** An intensive review of the evidence for, and main outlines of, human biological and cultural evolution up to agricultural origins.

**5353. MEDICAL ANTHROPOLOGY (3-0).** An examination of anthropological concepts for understanding curing practices and attitudes toward health programs in various cultures.

**5355. HUNTERS AND GATHERERS (3-0).** Cross-cultural approach to the ecological, social, and historical contexts of hunters, gatherers, and foragers.

**5360. ANTHROPOLOGY AND EDUCATION (3-0).** The study of socialization and education in cross-cultural perspective. Themes include education and language, schooling and nationalism, multicultural education, childhood socialization, literacy, adult learning, and school culture.

**5363. ETHNOGRAPHY AND PERSONAL NARRATIVE (3-0).** Focus is on anthropology and autobiography, autoethnography, life history, and narrative constructions of selfhood in different cultural contexts. Development of the life history approach in ethnographic research. Methods in the collections and analysis of life stories.

**5365. GLOBALIZATION AND TRANSNATIONAL MIGRATION (3-0).** Traces the history of ethnographic studies of immigrants in Western and developing countries. Compares the contemporary experiences of immigrant groups in U.S. cities. Issues include work, traders and entrepreneurs, family and households, social networks, kinship and voluntary associations, modes of settlement, ethnic identity, political organization and cultural change.

**5369. FOLKLORE AND MYTHOLOGY (3-0).** Function, forms, and interpretation of folklore and myth in traditional societies; examination of oral literature as an expression of continuity and change; emphasis on a structural analysis of myth.

**5370. APPLIED ANTHROPOLOGY (3-0).** Explores the principles of cultural dynamics and the sources of cultural change in innovation and diffusion. Focuses particularly on the anthropological theories, methods, and findings relevant to problems of directed culture change, especially as illustrated by non-literate and peasant groups in contact with western civilization.

**5371. RESEARCH PRACTICUM / INTERNSHIP (3-0).** Graded P/F/R.

**5373, 5673. ARCHAEOLOGY FIELD SCHOOL (3-0).** This course, conducted during the summer sessions, consists of on-site and classroom instruction in techniques of archaeological survey, excavation, laboratory, processing, and analysis. Students can receive either three or six hours of credit. Enrollment by permission of instructor only. Prior coursework in anthropology desirable but not necessary.

**5389. TEACHING ANTHROPOLOGY (3-0).** To learn strategies of coping with practical problems of teaching undergraduate anthropology, students confer with one or more professors to discuss preparing syllabi and lectures, constructing and evaluating examinations, etc. Not to be counted toward the degree requirement. Graded P/F.

**5392. CONFERENCE COURSE IN ANTHROPOLOGY.** Graded P/F/R.

**5398, 5698. THESIS.** 5398 graded R/F only. 5698 graded P/F/R.

# Department of Theatre Arts

[www.uta.edu/theatre](http://www.uta.edu/theatre)

## Chair

Kim LaFontaine  
144 Fine Arts, 817-272-2650

## Graduate Faculty

Faculty members of the  
Program in Theatre Arts  
serve as graduate instructors.

## Objective

The graduate course offerings in theatre arts are provided to support other graduate degree programs and to meet the express needs of students. No program leading to a graduate degree in theatre arts exists at this time.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Theatre (THEA)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5393. TOPICS IN THEATRE ARTS (3-0).** Special topics in theatre; offered periodically, with subject matter determined by instructor and student interest. Previous topics have included: Design Portfolio Workshop; Alternative Actor Training Workshop; Playwriting; Improvisation; and Styles in Acting.

# The School of Nursing

Dean: Elizabeth C. Poster, Ph.D.

669 Pickard Hall • Box 19407 • 817-272-2776 • [www.uta.edu/nursing](http://www.uta.edu/nursing)

## Mission and Philosophy

The School of Nursing, an integral component of The University of Texas at Arlington, seeks to assure health care of the highest quality for the people of Texas. The faculty believe in the promotion and support of excellence in professional nursing through teaching, scholarly endeavors and community service. Through its undergraduate, graduate and continuing education programs, the School of Nursing is committed to prepare and develop individuals for professional nursing roles and for collaboration with other professionals and consumers in the delivery of health care.

Learning, a continuous lifelong process, is a personal responsibility. The faculty believes students must be actively involved in the learning process to acquire clinical proficiency and to be socialized into professional roles. In nursing education, learning experiences are planned to achieve sequence, continuity and synthesis of knowledge and skills as defined by the educational objectives. The teaching and learning processes involve the teacher and learner in setting goals, selecting learning experiences, evaluating progress, and revising instructional methods and curriculum as appropriate. The educational process facilitates the development of each person's potential and reflects democratic values and ethical principles.

Faculty and students share the responsibility for creating an educational climate that fosters mutual respect, integrity, intellectual inquiry, critical thinking, creativity, and effective communication. Faculty and students together contribute to the knowledge base of the profession through their scholarly endeavors, including the application of nursing science, conduct of research, and dissemination of knowledge through presentations and publications. Faculty and students provide service to the University and the community, promoting health through their involvement and leadership.

Undergraduate nursing education is based upon studies in the arts, sciences and humanities, and provides a foundation for continuing personal, professional and educational development. The baccalaureate program is designed to prepare a competent, self-directed, general practitioner of nursing who can assume increasing responsibility and leadership in the delivery of nursing care.

Graduate nursing education builds on a foundation of undergraduate nursing education and provides an opportunity for professional nurses to continue developing a specialty practice that is congruent with an expanding theoretical and empirical knowledge base. The graduate program in nursing is designed to assist professional nurses to prepare for advanced clinical and functional roles that require increased accountability, expertise and leadership. The master's program facilitates the use of the research process through the course of study and prepares the graduate to be a critical thinker and a self-directed professional who collaborates with consumers and other health care providers.

The faculty believe that doctoral education is essential to develop and advance an empirical knowledge base for nursing as a discipline. The doctorate provides a basis for future research programs and other scholarly activities.

Continuing education in nursing is based upon the premise that maintaining competency in nursing practice is the responsibility of each professional nurse. The faculty believes it is the responsibility of the School of Nursing to be sensitive to the influences inherent in a changing society and to respond to the continuing educational needs of professional nurses in Texas.

Based on a holistic perspective, the curricula of the School of Nursing educational programs encompass the major concepts of person, health, environment, and nursing. The person is defined as an individual, a family, an aggregate, a community, or a society, each having relationships with and responsibilities to the others. The person has unique environmental, physiological, psychosocial-cultural, philosophical, developmental and spiritual dimensions and possesses inherent dignity and worth. The person's unique, complex needs are communicated through a variety of behaviors across the lifespan.

Health is a dynamic state and implies a continuous response by the person to stimuli from the environment. Health encompasses many processes: promoting and maintaining health, preventing illness, recovering from illness, and dying with dignity. Nurses are accountable for assisting persons toward health. Each person has the right to health care provided through a collaborative process, resulting in informed health decisions and shared accountability for outcomes.

The environment consists of physiological, psychosocial-cultural, philosophical, developmental, and spiritual conditions and forces impacting the person's health. Environmental conditions and forces continually change and interact, forming a complex context for nursing practice. The nurse has the responsibility to assess the environment at the level impacting the person, manage its constraints, and utilize its resources to promote the health of the person.

Nursing is enacted by applying the nursing process within the roles of clinician, teacher, manager, and researcher. The professional nurse functions in diverse practice settings with persons of various cultures. Within the context of a caring interpersonal relationship and guided by ethical, legal, and professional standards, the nurse uses critical thinking to apply evidence-based knowledge and skills in the management of nursing care. As an essential part of the health care delivery system, nursing is a socially determined profession whose practice evolves in response to the needs of persons. These needs provide direction for future roles of professional nursing practice.

## History and Overview

The UTA School of Nursing was established in 1971 as the U.T. System School of Nursing in Fort Worth and was housed in John Peter Smith Hospital. The first baccalaureate class enrolled in fall of 1972; the graduate program (MSN) began in 1975. In 1976, the school became an academic unit of UTA, moving to the campus in 1977.

The Undergraduate Program consists of the BSN and the RN to BSN programs. In addition to the Arlington campus, the RN to BSN program is offered via videotape on five extended campuses (parenthesis indicates the year in which each program was established): four rural

sites of Paris (1990); Waco (1989); Kaufman (1996); and Denison (1990) and two urban sites at the University of North Texas System Center in South Dallas (2001) and Texas Health Resources in Dallas and Fort Worth (2004). The Graduate Program offers a Master of Science in Nursing with preparation as a nurse practitioner in the areas of Acute Care (1996), Adult (1989), Emergency (2004), Family (1975), Gerontology (1984), Pediatric (1985) and Psychiatric-Mental Health (1995). Post-master's certificates are available in all the above nurse practitioner specialties and also as an Acute Care Pediatric Nurse Practitioner (2002) and Palliative Care Nurse Practitioner (2005). In addition, the UTA Graduate Nursing Program offers preparation in Nursing Administration (1985). Additional certificates are offered in the following areas: Nurse Educator (2001), Advanced Nurse Educator (2001) and Registered Nurse First Assistant (2003). The school began offering a professional field in nursing as part of the Ph.D. in Urban and Public Administration in 1996. A Ph.D. in Nursing was approved in April 2003 with classes beginning in Fall 2003. The Ph.D. program includes two portfolio areas of study: 1) Academic Role Development and 2) Clinical Research.

## Accreditation

The Master of Science in Nursing degree program is accredited by the National League for Nursing Accrediting Commission (NLNAC). An annually updated source for the program's required tuition, fees and program length is NLNAC, 61 Broadway, New York, NY 10006 (telephone: 212-363-5555, Ext. 153 or 800-669-1656, Ext. 153). There are no accrediting agencies for nursing programs at the doctoral level.

## Scholastic Activities and Research Interests of the Faculty

The research programs of the School of Nursing faculty are diverse. A sampling of their areas of study includes Hispanic health care (Dr. Mary Lou Bond); effects of colon cleansing/ gastroenterology (Dr. Marilee Schmelzer); nursing care outcomes (Dr. Carolyn L. Cason); chemical dependency and abuse (Drs. Cheryl Anderson and Diane Snow); care of persons with HIV disease and AIDS (Dr. Jennifer Gray); sickle cell disease (Dr. Phyllis Adams); cancer (Dr. Nancy Burns); care of the elderly (Drs. Melinda Hiemenz and Barbara Raudonis); palliative care (Dr. Mary Jo Perley); nursing informatics (Dr. Pat Turpin); leadership and management (Dr. Sharon Judkins); effects of illness on cognitive function (Dr. Mary Schira); health services research (Drs. Susan K. Grove and Reni Courtney); noise in critical care unit (Dr. Wendy Barr); educational research (Dr. Lorrie Hegstad); and outcomes in psychiatric nursing (Dr. Elizabeth Poster); neonatology and very low birth weight (Dr. Judy LeFlore); quality of life, spirituality and GI nursing topics (Dr. Kathy Wright); character development among youth (Dr. Susan Rugari); and chronic mental illness (Dr. Mary Weber).

## Special Programs and Opportunities Learning Resources Center

**Director:** Dee Dee Freeman

The mission of the Center is to provide both undergraduate and graduate students a place to develop, refine, and apply knowledge in the clinical practice of skills. Computer labs are available for student use. Faculty are provided resources to support classroom instruction, clinical learning activities, and scholarly endeavors. Human patient simulation manikins are integrated into teaching.

## Center for Nursing Research

**Associate Dean for Research:** Dr. Carolyn Cason

Research is an important component of the professional role in the School of Nursing. The Center provides research support services to faculty and students: identifying funding sources; developing competitive proposals; writing grant applications; retrieving literature; collecting, entering and analyzing data; and disseminating research results. Collaborative relationships for research with Metroplex health care agencies are in place.

## Center for Psychopharmacology Education and Research

**Directors:** Dr. Diane Snow and Dr. Mary Weber

This Center is committed to advancing the knowledge of psychopharmacology and related neurosciences. The Center promotes the acquisition of this knowledge through education of Advanced Practice Registered Nurses (APRNs) and other health care professionals.

## Center for Hispanic Studies in Nursing and Health

**Director:** Dr. Mary Lou Bond

The Center is dedicated to fostering understanding between health care professionals and people of Hispanic/Latin American origin for the purpose of increasing understanding of health and healing through research of individual experience, cultural meanings and the structure of institutions as important variables influencing health outcomes. The Center is also committed to the provision of educational programs and services which will assist health care providers to gain the necessary knowledge and skills to deliver increasingly culturally sensitive and competent care. The Center promotes interdisciplinary and interuniversity collaboration as a strategy for development of resources to solve or deal with bicultural issues facing health care professionals.

## Rural Health Outreach Program

**Director:** Nancy Willson, RN, JD

The purpose of the Center is to provide appropriate, affordable, accessible continuing education to the nursing staffs of acute care and psychiatric hospitals, long term care facilities, home health agencies, and other health care facilities in the rural communities of North Central Texas.

### **Center for Continuing Nursing Education**

**Director:** Buddy Herrington, RN, MSN

The mission of this Center is to provide quality continuing nursing education for the improvement of nursing practice and health care in North Texas. The program strives to be a regional center for the advancement of professional continuing nursing education and to meet the diverse needs of nurses in most every clinical specialty and all levels of functional roles.

### **Center for Leadership in Nursing and Health Care**

**Director:** Dr. Patricia Turpin

The Center's mission is to provide students, faculty, nurse executives, managers and clinicians working in all types of health care settings the educational resources and specific programs to develop leadership skills complementary to the formal curricula of schools of nursing.

## **Programs**

### **Major Areas of Study for MSN**

#### **Nursing Administration**

#### **Nurse Practitioner Programs**

- Acute Care Nursing
- Adult Nursing
- Emergency Nursing
- Family Nursing
- Gerontology Nursing
- Pediatric Nursing
- Psychiatric-Mental Health Nursing (Adult or Family)

### **Major Areas of Study for Ph.D. in Nursing**

**Academic Role Development**

**Clinical Research**

# Nursing

[www.uta.edu/nursing](http://www.uta.edu/nursing)

## Degrees in Nursing

M.S.N.  
Ph.D.

## Master's Degree Plans

Thesis and Non-Thesis

## Doctoral Degree Plan

Dissertation

## Dean

Elizabeth C. Poster  
669 Pickard Hall, 817-272-2776

## Associate Dean of Masters in Nursing and Graduate Advisor

Susan K. Grove  
604 Pickard Hall, 817-272-2776

## Interim Associate Dean of Ph.D. in Nursing and Graduate Advisor

Mary Lou Bond  
518 Pickard Hall, 817-272-5295

## Graduate Faculty

### Professors

Bond, Burns, Cason, Grove, Poster

### Associate Professors

Courtney, Gibson, Hegstad,  
O'Quinn, Raudonis, Schmelzer

### Assistant Professors

Anderson, Gray, Judkins,  
Snow, Weber, Wright

### Associate Clinical Professors

Barr, Rugari, Schira

### Assistant Clinical Professors

Adams, Baker, Carlson, Drinkard, Handy,  
Keeling, LeFlore, Miller, Perley, Turpin, Willson

### Clinical Instructors

Davis, Fowler, Gariota, Gillman, Goller, Grant,  
McLean, Parker, Patrick, Schram, Simpson, Wyrick

## MSN Admission Requirements

The applicant for the Master of Science in Nursing (MSN) degree must meet the general requirements of the Graduate School and have a Bachelor of Science in Nursing (BSN) degree from a program accredited by the National League for Nursing Accrediting Commission (NLNAC) or the Commission on Collegiate Nursing Education (CCNE) or proof of equivalent education at a foreign institution. Individual consideration may be given to applicants who hold a BSN degree from non-accredited programs and to applicants with baccalaureate degrees in other areas.

Potential students must also possess a current unencumbered Texas RN license for admission.

The School of Nursing admission criteria are detailed in the table on the next page. The admission status options are described, with a grade point average (GPA) and graduate record exam (GRE) ratio provided to clarify probationary and unconditional admission requirements.

### Unconditional Admission

Criteria for unconditional admission status are designated in the table on the next page.

### Probationary Admission

Criteria for probationary admission status and the GPA-GRE ratio are listed on the next page. When on probation, students can make no grade lower than a B in their first 12 semester hours of graduate coursework.

### Provisional Admission

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements will be granted provisional admission.

### Deferred Status

Deferred decision is granted when a file is incomplete or when a denial decision is not appropriate.

### Denial of Admission

An applicant will be denied admission if they have less than satisfactory performance on a majority of admission criteria listed in the table on the next page.



MSN Graduate Admission Table			
Admission Criteria	Unconditional		Probationary
GPA on last 60 hours of Undergraduate Program (BSN) (as calculated by Graduate School of UTA)	3.3	3.0*	2.8-2.99
GRE** Two highest GRE scores will be used in admission process.	Waived***	Verbal: $\geq 500$ score or Quantitative: $\geq 500$ score or Analytical Writing: $\geq 4$ Analytical: $\geq 500$	Verbal: 400-490**** or Quantitative: 400-490**** or Analytical Writing: 3.0-3.5**** Analytical: 400-490**** (based on GPA/GRE ratio)
GMAT Required for MSN/MBA Dual Degree	GPA x 200 + GMAT score = Minimum 1080		See MBA Advisor
TOEFL (Test of English as a Foreign Language) or TSE (Test of Spoken English)	550 on paper-based test or 213 on computer-based test (TOEFL) or Score of 40 or higher (TSE)		
3 letters of recommendation	Evaluated by Associate Dean and Program Director of MSN Program		
Two years clinical experience recommended	Evaluated by Associate Dean and Program Director of MSN Program		
Essay	Evaluated by Associate Dean and Program Director of MSN Program		
Unencumbered RN License in Texas	Evaluated by Associate Dean and Program Director of MSN Program		
BSN from NLNAC or CCNE Accredited Program	Evaluated by Associate Dean and Program Director of MSN Program		
Statistics	Minimum grade of "C"		
Physical Assessment for Nurse Practitioner Applicants	Current within last three years (course or continuing education program)		
Computer expertise for Nursing Administration applicants	Evaluated by Director of Nursing Administration		

\* Minimum undergraduate GPA requirement for unconditional admission is a 3.0 on a 4.0 scale.

\*\*Verbal, Quantitative and Analytical Writing GRE scores will be reviewed and the two highest scores will be considered for admission process. Rationale: The three GRE scores have similar correlations ( $r = .3 - .4$ ) with the UTA MSN graduates' GPA. Thus, the scores seem to have similar ability to predict success in graduate study. The Graduate Studies Committee (GSC) in Nursing approved that the two highest GRE scores be considered for the admission process, allowing the student some flexibility in the admission process.

\*\*\*GRE Waiver Rationale: Graduate Faculty and Graduate Advisors have noted that students with a GPA of 3.3 or greater are more successful in the graduate nursing program than those with GPAs less than 3.3. Research literature strongly correlates undergraduate GPA in professional courses (last 60 hours) of BSN with success in Graduate Nursing Programs. GSC in Nursing approved waiver of GRE with 3.3 GPA on last 60 hours of undergraduate program.

\*\*\*\*Students not meeting GPA/GRE ratio will be reviewed by a committee of Chair of the GSC in Nursing, Graduate Advisor, Director of Program student has selected for study and a Core Faculty. The committee will review the following: GPA; GRE scores (verbal, analytical/analytical writing and quantitative); letters of recommendation; TOEFL (if applicable); essay; and statistics grade. An applicant who performs successfully on a majority of these criteria will be admitted on probation. The committee will make a final admission decision and document that decision for the student record.

## GPA-GRE Ratio

### Probationary Admission

GPA	Verbal	Quantitative	Analytical Writing or Analytical
3.2	400-490	400-490	400-490 or 3.0-3.5
3.1	410-490	410-490	410-490 or 3.0-3.5
3.0	420-490	420-490	420-490 or 3.0-3.5
2.9	≥430	≥430	≥430 and ≥3.5
2.8	≥440	≥440	≥440 and ≥3.5

**Admission Policy for Individuals Ineligible to Continue Graduate Study at Another University:** If potential students are ineligible to continue graduate study at another university and apply to the University of Texas at Arlington Graduate Nursing Program, we recommend that they be reviewed by a committee. The committee will be composed of: 1) Director of the Program they wish to study; 2) Representative core faculty, and 3) Graduate Advisor. The committee will make their recommendation for admission or denial based on the following: 1) Admission materials (GPA on the last 60 hours of BSN, graduate GPA, GRE scores, grade of C or higher on statistics, letters of recommendation, essay, and TOEFL score if applicable); 2) a narrative statement from the potential student providing a rationale for their ineligibility at another university; and 3) a plan for successful study at U.T. Arlington. The committee reserves the right to ask for additional materials as are needed. The committee will make its recommendation of admission or denial to the Graduate Office for the University.

## MSN Fellowship Criteria

Fellowship selection will be based on the highest GPA in the last 60 hours of BSN. Candidates for fellowships must meet the following criteria:

1. New students admitted to U.T. Arlington in the fall semester.
2. Have a minimum GPA of 3.0 in the last 60 hours of their BSN.
3. Maintain 3.0 GPA in graduate credit hours while receiving the fellowship.
4. Enrolled in a minimum of 6 semester hours in the long semesters.

## MSN Degree Requirements

Students are required to have each semester's planned program approved by the Graduate Advisor prior to registration. A minimum of 38 semester hours, thesis or non-thesis option, is required for the degree. Three to six semester hours of elective coursework that supports the selected nursing study area are required and must be approved by the Graduate Advisor prior to registration. Students selecting nurse practitioner preparation in Acute Care Nursing, Adult Nursing, Emergency Nursing, Family Nursing, Gerontological Nursing, Pediatric Nursing, or Psychiatric-Mental Health Nursing and electing the thesis option are required to complete 51-54 semester hours for the degree depending on area of study. Students selecting Adult Nursing, Emergency Nursing, Family Nursing, Pediatric Nursing or Gerontological Nursing must select Nurse Practitioner as their functional area.

All non-thesis candidates for the degree of Master of Science in Nursing shall pass a written examination (comprehensive exams) or

complete a scholarly project (master's completion project) as determined by the School of Nursing. All thesis candidates for the degree of Master of Science in Nursing shall present the completed thesis in a final oral examination.

**MSN students must complete hours in required courses, nursing specialty area, functional role and elective(s).**

### MSN Required Courses

NURS 5327. Analysis of Theories for Nursing

NURS 5301. Research in Nursing

NURS 5205. Issues in Professional Nursing

NURS 5328. Theory and Research Application in Nursing

### MSN Nursing Specialty Areas

Each student must complete the required courses in at least one nursing specialty area:

#### Nursing Administration

NURS 5339, 5340, 5341, 5342, 5382

#### Nurse Practitioner Programs

Acute Care: NURS 5203, 5305, 5314, 5315, 5316, 5334, 5435, 5436, 5631

Adult: NURS 5203, 5305, 5313, 5315, 5316, 5334, 5420, 5421 or 5546, 5631

Emergency: NURS 5203, 5305, 5306, 5314, 5315, 5316, 5334, 5433, 5434, 5631

Family: NURS 5203, 5305, 5306, 5313, 5315, 5316, 5334, 5420, 5431, 5631

Gerontological Nursing: NURS 5203, 5305, 5313, 5315, 5316, 5334, 5420, 5422 or 5546, 5631

Pediatric: NURS 5203, 5306, 5313, 5315, 5316, 5334, 5442, 5444, 5631

Psychiatric-Mental Health (Adult): NURS 5203, 5305, 5315, 5316, 5334, 5424, 5425, 5631

Psychiatric-Mental Health (Family): NURS 5203, 5305, 5306, 5315, 5316, 5334, 5424, 5425, 5631

### MSN Functional Role

Each student must complete the required courses in at least one functional role as designated by their degree plan:

Administration: NURS 5311, 5343

Nurse Practitioner: NURS 5350

Educator: NURS 5302, 5429

### Electives/Independent Study

Elective courses may be taken in Nursing or other departments of the University. Electives can also be transferred from other universities with the approval of the Graduate Advisor. Independent study offers the student the opportunity to explore topics of special interest.

## Post-Masters Nursing Certificates

The nurse practitioner certificate enables graduates to be recognized by the Board of Nurse Examiners as an Advanced Practice Nurse and to take a national certification exam in their area of specialization. Certificate students must complete the required courses for the nursing specialty area and functional role.

Acute Care Nurse Practitioner

Acute Care Pediatric Nurse Practitioner

Adult Nurse Practitioner

Emergency Nurse Practitioner

Family Nurse Practitioner  
 Gerontological Nurse Practitioner  
 Palliative Care Nurse Practitioner  
 Pediatric Nurse Practitioner  
 Psychiatric-Mental Health Nurse Practitioner (Adult or Family)

## Masters Nursing Certificates

Three certificates in Nursing Education are available through the School of Nursing.

- **Nursing Education:** A 6-hour certificate that includes any combination of three education courses (NURS 5302, 5308 or 5309).
- **Nurse Educator Role:** A 7-hour certificate that includes NURS 5302 and 5429. This certificate involves completing 90 hours of clinical and provides an extremely strong background to implement the role as an educator.
- **Advanced Nurse Educator Role:** A 13-hour certificate which includes all four educator courses (NURS 5302, 5308, 5309 and 5429). This certificate provides the strongest background to be an educator in either an associate degree or baccalaureate program.

## MSN Cooperative Programs

**Cooperative Agreement between The University of Texas at Arlington School of Nursing and Texas Tech University Health Sciences Center School of Nursing (TTUHSCSON).** Students may transfer a maximum of 21 hours of designated courses from TTUHSCSON to fulfill part of the requirements for an MSN in Psychiatric-Mental Health Nursing at UTA. Students must complete 27 designated course hours at UTA. See Graduate Advisor for details of Cooperative Agreement.

**Cooperative Agreement between The University of Texas at Arlington School of Nursing and The University of Texas Southwestern Women's Health Care Nurse Practitioner Program.** Students who had a BSN and then completed the Women's Health Nurse Practitioner Program may receive 8 hours of credit toward an MSN at UTA. The remainder of the nurse practitioner course requirements must be completed at UTA. See Graduate Advisor for details of Cooperative Agreement.

**Cooperative Agreement between The University of Texas at Arlington School of Nursing and The University of Texas at Tyler (UTT).** Students may transfer a maximum of 18 hours of designated courses from UTT to fulfill part of the requirements for an MSN at UTA. Students must complete 31-34 designated nurse practitioner course hours at UTA. See Graduate Advisor for details of Cooperative Agreement.

**Veteran's Administration Medical Centers (VA):** The School of Nursing has developed a Cooperative Agreement with eight VA Medical Centers across North Texas to deliver the Nursing Administration MSN through VTEL distanced education (DE) format. See Graduate Advisor for details of Cooperative Agreement.

**Texas Health Resources (THR):** A Cooperative Agreement exists between THR and the School of Nursing to offer the Nursing Administration MSN by VTEL to Presbyterian Hospital in Dallas and Harris Hospital in Fort Worth. See Graduate Advisor for details of Cooperative Agreement.

## Dual or Joint Degree Programs

### Dual Degree Programs

Master of Science in Nursing Administration/Master of Business Administration (MSN/MBA) [60 credit hours]  
 Master of Science in Nursing/Master of Science in Health Care Administration (MSN/HCAD) [56 credit hours]

### Joint Degree (MSN from UTA and MPH from U.T. Health Science Center at Houston)

Master of Science in Nursing/Master of Public Health (MSN/MPH) [62-64 credit hours]

## Ph.D. Objective

Doctoral nursing education builds on a foundation of masters nursing education and prepares the student for original research and theory development. The Ph.D. in Nursing Program is designed to prepare nurse scientists to meet the health needs of a rapidly changing and culturally diverse society. The central focus of the Ph.D. in Nursing Program is to prepare researchers and teachers who understand how communities evolve, interact, change and how they prescribe, understand and sanction health, illness and health seeking behaviors.

## Ph.D. Admission Requirements

The applicant for the doctor of philosophy in Nursing (Ph.D.) degree must meet the general requirements of the Graduate School and have a Master of Science in Nursing degree from a program accredited by the National League for Nursing Accrediting Commission (NLNAC) or the Commission on Collegiate Nursing Education (CCNE) or proof of equivalent education at a foreign institution.

Foreign students whose native language is not English must take, in addition to the Test of English as a Foreign Language (minimum score of 550), the Test of Spoken English (minimum score of 40). The foreign student must also possess a current Texas RN license for admission.

## Ph.D. Admission Status Options

The School of Nursing admission criteria are detailed in the table which follows. The admission status options are defined below.

### Unconditional Admission

Applicants must meet all criteria for unconditional admission

### Probationary Admission

Criteria for probationary admission status are designated in the following table. \*

\*Students not meeting GPA/GRE ratio will be reviewed by the Admission Committee which is chaired by the Associate Dean for Ph.D. The committee will review the following: GPA, GRE scores, TOEFL (if applicable), Goal Statement, and Interview scores. An applicant who performs successfully on a majority of these criteria will be admitted on probation. The committee will make a final admission decision and document that decision for the student record. When on probation, students can make no grade lower than a 3.0 in their first 12 semester hours of graduate coursework.

The Ph.D. Program in Nursing Admission Requirements		
Admission Criteria	Unconditional	Probationary
Master's Degree in Nursing from a National League for Nursing Accrediting Commission (NLNAC) or American Association of Colleges of Nursing's Commission on Collegiate Nursing Education (CCNE) accredited School of Nursing or equivalent.	Evaluated by Associate Dean for Doctoral Studies	Evaluated by Associate Dean for Doctoral Studies
GPA on master's coursework.	3.0 GPA on a 4.0 scale	3.0 GPA on a 4.0 scale
GRE	GRE with a total minimum score of $\geq 500$ on verbal or $\geq 500$ on quantitative sections; analytical/analytical writing scores: $\geq 500/\geq 4$	GPA of 3.3 if GRE is 900-990*
For international students, TOEFL score or TSE-A.	TOEFL minimum score of 550 on written portion, 213 on computer based test, OR a score of at least 40 on the TSE-A.	TOEFL minimum score of 550 on written portion, 213 on computer based test, OR a score of at least 40 on the TSE-A.
Graduate level statistics course with a minimum grade of B.	Implement as stated	
Interview	7 or higher on rating scale of 1-10	6 or less on rating scale of 1-10 Evaluated by Admissions Committee
Written statement of goals	7 or higher on rating scale of 1-10	6 or less on rating scale of 1-10 Evaluated by Admissions Committee
Professional liability insurance.	Evaluated by Associate Dean for Doctoral Studies.	Evaluated by Associate Dean for Doctoral Studies.
Current unencumbered license as a RN; license in the state where student is participating in clinical activities.	Evaluated by Associate Dean for Doctoral Studies.	Evaluated by Associate Dean for Doctoral Studies.
Immunizations required by the School of Nursing.	Evaluated by Associate Dean for Doctoral Studies.	Evaluated by Associate Dean for Doctoral Studies.
Criminal background check, which satisfies the Dallas/Fort Worth Hospital council and the Texas Board of Nurse Examiners.	Evaluated by Associate Dean for Doctoral Studies.	Evaluated by Associate Dean for Doctoral Studies.
Drug screen prior to clinical and research activities in health care agencies, which satisfies the Dallas/Fort Worth Hospital council and the Texas Board of Nurse Examiners.	Evaluated by Associate Dean for Doctoral Studies.	Evaluated by Associate Dean for Doctoral Studies.
Demonstrate proficiency in use of computer for word processing, spreadsheet development, and data and text file creation and manipulation.	Evaluated by Associate Dean for Doctoral Studies.	Evaluated by Associate Dean for Doctoral Studies.

### Provisional Admission

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements.

### Deferred Status

Deferred decision is granted when a file is incomplete or when a denied decision is not appropriate.

### Denial of Admission

An applicant will be denied admission if he/she has less than satisfactory performance on a majority of admission criteria listed in the table below. The Ph.D. Admissions Committee will make a recommendation for denial.

### Ph.D. Fellowship Criteria

Fellowship selection will be based on the following criteria:

1. Highest GPA but no lower than 3.0 on BSN and MSN.
2. New students admitted to UT Arlington in the Fall semester.
3. Minimum 3.0 GPA in graduate credit hours while receiving fellowship.
4. Enrolled in a minimum of 6 semester hours in the long semesters.

### Degree Requirements

Students are required to have each semester's planned program approved by the Graduate Advisor prior to registration. A minimum of 58 semester hours is required for the degree: 36 hours of core courses, 12 hours in the portfolio area of choice, 1 hour of dissertation seminar and 9 hours of dissertation.

#### Ph.D. Required Courses (Core)

- NURS 6301 Theoretical Evolution in Science  
 NURS 6302 Issues in Studying Health of Culturally Diverse and Vulnerable Populations  
 NURS 6303 Culture of Science  
 NURS 6304 Measurement in Culturally Diverse and Vulnerable Populations  
 NURS 6305 Qualitative Methodologies  
 NURS 6306 Designing and Testing Interventions  
 NURS 6308 Research Seminar  
 NURS 6309 Scientific Products: Preparation & Dissemination  
 NURS 6310 Proposal Development Seminar  
 6 hours Advanced Statistics approved by Graduate Advisor  
 3 hours Epidemiology approved by Graduate Advisor

**Courses Required for Portfolio Areas (Each student must complete the required courses in one of the two portfolio areas)**

#### Academic Role Development

- NURS 6311 The Academic Role in Higher Education  
 NURS 6313 Preparing Nurse Educators to Assist Students for Care of Diverse and Vulnerable Populations  
 NURS 6315 Faculty Internship in Nursing Education  
 3 hours Psychometric Theory Course approved by Graduate Advisor

#### Clinical Research

- NURS 6314 Clinical Research: A Nursing Perspective  
 NURS 6316 Clinical Research Residency  
 NURS 6317 Conduct of Research in Clinical Environment  
 ECON 5333 Microeconomic Theory  
 6 hours Electives approved by Graduate Advisor

#### Dissertation

- NURS 6101 Dissertation Seminar  
 NURS 6399 Dissertation  
 NURS 6699 Dissertation  
 NURS 6999 Dissertation

### Language Requirement

Each doctoral student must demonstrate knowledge of a foreign language by ONE of the following ways:

(1, 2, OR 3)

1. Reading knowledge of one foreign language (Spanish, French, Russian or other as approved by the Graduate Studies Committee).
  - a. Examination prepared by appointee of Dean of Graduate Studies for the University; or
  - b. Acceptable score on Testing Service Graduate School Foreign Language Test; or
  - c. B or higher on 12 credit hours of a foreign language taken within the last 5 years and approved by the Graduate Studies Committee
2. Oral proficiency in one foreign language (Spanish, French, Russian or other as approved by the Graduate Studies Committee) as determined by an examination prepared by appointee of Dean of Graduate Studies for the University.
3. Proficiency in a research tool area (statistics or computer language). Students, upon the advice and consent of their Doctoral Advisory Committee, may meet the foreign language requirement by making a B or higher on 12 credit hours in advanced statistics; information systems courses including database development and management; biomedical instrumentation; graphical information systems; or, other set of courses that support the student's research goals.

### Diagnostic Evaluation

After 18 core hours to assess progress and potential for completion

### Comprehensive Examination

After all coursework and language requirements

### Dissertation Defense

## Nursing (NURS)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six-hour thesis course and nine-hour dissertation course. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

- 5203. PSYCHIATRIC MANAGEMENT IN ADVANCED NURSING PRACTICE (1-3).** Foundations of clinical management of individuals with common psychiatric-mental health problems in ambulatory settings. Prerequisite: NURS 5316, 5334 or permission of instructor.
- 5205. ISSUES IN PROFESSIONAL NURSING (2-0).** Explores and analyzes contemporary issues and health care trends that influence leadership for the practice of professional nursing within a dynamic health care system. Prerequisite: Senior status, graduate standing or permission of instructor.
- 5301. RESEARCH IN NURSING (3-0).** Exploration of the research process and critical examination of published studies with emphasis on statistical analysis, critique, and utilization. Prerequisites: NURS 5327 or concurrent, and elementary statistics.
- 5302. CURRICULUM DEVELOPMENT IN NURSING (3-0).** Explore the nature of nursing education. Focus on the curriculum process and its application to nursing education programs. Prerequisite: NURS 5301 or permission of instructor.
- 5305. ADULT MANAGEMENT IN ADVANCED NURSING PRACTICE I (2-3).** Foundations of clinical management for commonly occurring conditions of adults in primary care. Prerequisite: NURS 5316, 5334 or permission of instructor.
- 5306. PEDIATRIC MANAGEMENT IN ADVANCED NURSING PRACTICE (2-3).** Foundations of advanced clinical practice in the primary care of children, birth to 21 years with a family centered approach on growth and development, health promotion and management of common health problems. Prerequisite: NURS 5316, 5334 or permission of instructor.
- 5308. NURSING INFORMATICS (2-3).** Focus on application of computer technology that supports the dissemination of health care data, information and knowledge. Selected software packages/applications are presented and used. Prerequisite: Graduate standing.
- 5309. CREATIVE TEACHING/LEARNING STRATEGIES (3-0).** Focuses on concepts in adult learning and the facilitation of learning. Prerequisite: Graduate standing.
- 5310. NEGOTIATION AND CONFRONTATION (3-0).** Focus on analysis and synthesis of knowledge from relevant theories and implementation of interpersonal skills and techniques of negotiation and confrontation. Prerequisite: Graduate standing.
- 5311. NURSING MANAGEMENT IN THE HEALTH CARE ENVIRONMENT (3-0).** Considers development of theories of leadership and organizational behavior as applied to the health care arena. Prerequisite: NURS 5327 or concurrent enrollment.
- 5312. LEADERSHIP AND OUTCOMES MANAGEMENT (2-3).** Focuses on leadership and strategies for outcome evaluation in a health care setting. Prerequisite: Graduate standing.
- 5313. CLINICAL PROCEDURES FOR ADVANCED PRACTICE NURSES (2-3).** A theory and clinical procedures course designed for the Advanced Practice Nurse to acquire skills and procedures in the clinical management of selected patients. Prerequisite: NURS 5316.
- 5314. INVASIVE PROCEDURES FOR ADVANCED PRACTICE NURSES (2-3).** A theory and clinical procedures course designed for the Advanced Practice Nurse to acquire invasive skills and procedures in the clinical management of selected patients. Prerequisite: NURS 5316.
- 5315. ADVANCED PATHOPHYSIOLOGY FOR NURSING PRACTICE (3-0).** Focuses on developing an advanced knowledge base of pathophysiology of selected diseases. Principles of biochemistry, molecular biology and nutrition are applied to disease processes. Prerequisite: Graduate standing.
- 5316. ADVANCED HEALTH ASSESSMENT IN NURSING PRACTICE (2-3).** Apply theoretical foundations and clinical skills in comprehensive health assessment across the lifespan. Prerequisites: NURS 5301 and NURS 5334 or concurrent enrollment or permission of instructor.
- 5317. ADVANCED PSYCHOPHARMACOLOGY (3-0).** The study of psychopharmacology practice for advanced practice nurses. Prerequisites: APRN (Master's Degree in Nursing, National Certification).
- 5320. CASE MANAGEMENT OF THE CHILD WITH SPECIAL HEALTH CARE NEEDS (2-3).** Nursing assessment and case management of children with special health care needs 0-21 years and their families in ambulatory care settings. Prerequisite: NURS 5316 or permission of the instructor.
- 5321. NUTRITION IN HEALTH AND DISEASE FOR NURSING PRACTICE (3-0).** Focuses on the development of a scientific knowledge base of current nutritional practices in preventive, therapeutic management and clinical research. Prerequisite: Graduate standing.
- 5322. ANALYSIS AND INTERPRETATION OF RESEARCH DATA IN HEALTH CARE (3-0).** Analysis and interpretation of research data for health related studies using a Windows-based computer statistical package. Prerequisite: Elementary statistics.
- 5327. ANALYSIS OF THEORIES FOR NURSING (3-0).** Critical examination of philosophical and theoretical bases for nursing. Analysis of selected concepts and theories. Prerequisite: Graduate standing.
- 5328. THEORY AND RESEARCH APPLICATION IN NURSING (3-0).** Integration of theoretical and empirical elements of nursing research with emphasis on proposal development. Prerequisites: NURS 5327 and NURS 5301.
- 5330. CLINICAL DECISION-MAKING IN ADVANCED NURSING PRACTICE (2-3).** Systematic clinical decision making and development of management plans in advanced nursing practice. Prerequisite: NURS 5421, 5422, 5425, 5436 or 5546.
- 5334. ADVANCED PHARMACOLOGY FOR NURSE PRACTITIONERS (3-0).** Study of clinical pharmacological therapeutics for advanced nursing practice. Prerequisite: Graduate standing, NURS 5315 and/or permission of faculty.
- 5339. ROLES AND FUNCTIONS OF THE NURSE ADMINISTRATOR (1-6).** Examine and implement roles and functions of the administrative executives and managers in health care organizations. Prerequisites: NURS 5311 or MANA 5312; NURS 5328 or concurrent enrollment or permission of instructor.
- 5340. MANAGEMENT SEMINAR AND PRACTICE (1-6).** Analysis, application, and synthesis of management; organizational and leadership concepts and theories in selected health care settings. Prerequisites: NURS 5339 and 5342.
- 5341. FINANCIAL MANAGEMENT IN NURSING (2-3).** Financial management concepts, financial planning and budgeting, reimbursement systems in health care and financial management skills in nursing. Prerequisites: NURS 5301 and 5311, computer literacy with spreadsheets and graduate standing.
- 5342. MANAGEMENT OF NURSING OPERATIONS (2-3).** Strategic planning for health care systems. Prerequisites: Graduate standing, NURS 5341.
- 5343. NURSING LEADERSHIP AND COMPLEX HEALTH CARE SYSTEMS (3-0).** Analysis of current and predicted health care systems. Includes dimensions of environment, organizations, leadership, health care policy, ethics, and political action. Prerequisite: Graduate standing.

- 5344. FINANCE AND HUMAN RESOURCE MANAGEMENT FOR ADVANCED NURSING PRACTICE (2-3).** Enhance the effectiveness of the advanced practice nurse through the development of skills in financial and human resource management. Prerequisite: NURS 5343.
- 5350. ROLE OF THE NURSE IN ADVANCED PRACTICE (2-3).** Theory and application of the multiple roles of the advanced practice nurse within the health care system. Prerequisite: NURS 5420 or 5433 or 5435 or 5441 or 5442 or 5425 or 5446 or concurrent enrollment or permission of instructor.
- 5382. NURSING AND HEALTH CARE POLICY (3-0).** Examines historical, current and predicted health care policies formulated at the national, state and local levels. Emphasizes collaboration of nursing in determining and implementing health policy. Prerequisite: Graduate standing.
- 5385. NURSING CARE OF INDIVIDUALS/FAMILIES WITH ADDICTIVE BEHAVIORS (3-0).** Theoretical foundations for understanding the scope of the problem of addiction. Focuses on gaining expertise in the area of prevention and/or in the various modalities of therapy for the individual/family with an addictive problem. Prerequisite: Graduate standing.
- 5386. HEALTH LAW (3-0).** Health law as it affects professionals, institutions and entities that deliver and finance health care. Prerequisite: Graduate standing.
- 5387. THE LAW OF HEALTH CARE MALPRACTICE (3-0).** The law of health care malpractice as it affects professional relationships of all persons engaged in the provision of health care. Prerequisite: Graduate standing.
- 5393. ADVANCED CLINICAL NURSING PRACTICE I (1-6).** Development of advanced knowledge base of specialized clinical concepts and the application of this knowledge in selected clinical areas. Prerequisite: Graduate standing.
- 5394. ADVANCED CLINICAL NURSING PRACTICE II (1-6).** Expanded background in a selected clinical area with emphasis on analysis and synthesis of clinical data, clinical judgment and management of patients and families' care. Prerequisite: NURS 5393.
- 5416. CRITICAL CARE NURSING I (2-6).** Focuses on developing advanced knowledge and skill in the provision of care to critically ill adults (with selected problems) and their families. Prerequisites: NURS 5316, 5334 or concurrent enrollment.
- 5417. CRITICAL CARE NURSING II (2-6).** Focuses on collaboration in the provision of care to critically ill adults (with complex problems) and their families. Prerequisite: NURS 5416.
- 5420. ADULT MANAGEMENT IN ADVANCED NURSING PRACTICE II (2-6).** Focus on advanced knowledge of chronic and complex health problems in the primary care management of adults. Prerequisite: NURS 5305.
- 5421. ADULT NURSING (2-6).** Focus on advanced primary care knowledge for managing adults and their families with emphasis on adolescent, women and older adults in primary health care. Prerequisites: NURS 5420 and 5203.
- 5422. GERONTOLOGICAL NURSING (2-6).** Focus on advanced knowledge in the management of older adults and their families in a variety of settings. Prerequisites: NURS 5420 and 5203.
- 5424. PSYCHIATRIC-MENTAL HEALTH NURSING I (2-6).** Foundation for advanced assessment, clinical decision-making, and management of individuals, families, and groups at risk for and experiencing mental illnesses and addictions in selected settings. Prerequisite: NURS 5203 or permission of instructor.
- 5425. PSYCHIATRIC-MENTAL HEALTH NURSING II (2-6).** Focus on diagnosis, pharmacological and non-pharmacological management, and outcomes of individuals, families, and groups experiencing complex mental illnesses and addictions in a variety of settings. Prerequisite: NURS 5424, NURS 5328 or concurrent enrollment.
- 5429. ROLES AND FUNCTIONS OF THE NURSE EDUCATOR (2-6).** Investigate the roles and functions of the nurse educator with directed teaching experiences. Prerequisite: NURS 5302.
- 5431. FAMILY NURSING (2-6).** Focus on advanced knowledge in the management of patients and families throughout the lifespan. Prerequisites: NURS 5420 and 5203.
- 5433. EMERGENCY NURSE PRACTITIONER ACROSS THE LIFESPAN I (2-6).** Advanced clinical management of individuals across the lifespan with episodic and urgent health care needs. Prerequisites: NURS 5305, 5306 and 5314.
- 5434. EMERGENCY NURSE PRACTITIONER ACROSS THE LIFESPAN II (2-6).** Advanced clinical management of individuals across the lifespan with emergent health care needs requiring resuscitative measures for potentially life threatening alterations. Prerequisites: NURS 5433 and 5203.
- 5435. ACUTE CARE NURSING I (2-6).** Focuses on advanced knowledge of medical-surgical nursing in managing adults with secondary and tertiary health care needs. Prerequisite: NURS 5305.
- 5436. ACUTE CARE NURSING II (2-6).** Focuses on an interdisciplinary approach to the management and coordination of secondary and tertiary care for adults with complex multisystem dysfunction. Prerequisites: NURS 5203, 5435, 5328 or concurrent enrollment.
- 5440. ACUTE CARE PEDIATRIC NURSING I (2-6).** Family focused approach to the management of children with secondary and tertiary health care needs. Emphasis will be placed on the application of clinical decision-making models in the management of children with selected acute medical-surgical conditions. Prerequisites: NURS 5203, 5306.
- 5441. ACUTE CARE PEDIATRIC NURSING (2-6).** Focus is on advanced, interdisciplinary practice to assess, diagnose and manage acute and critical, single and multi-system health problems of children birth to 21 years in secondary and tertiary care settings. Prerequisite: NURS 5306. Prerequisite or Concurrent: NURS 5203 and 5314.
- 5442. PRIMARY CARE PEDIATRIC NURSING (2-6).** Focus is on integration of acquired theoretical and empirical knowledge in the assessment, diagnosis and management of multiple common acute and stable chronic health problems in children birth to 21 years. Prerequisite: NURS 5306. Prerequisite or Concurrent: NURS 5203 and 5313 or 5314.
- 5443. ADVANCED NURSING CARE OF PEDIATRIC CLIENT II (2-6).** Theory and clinical management of complex pediatric problems. The focus is on developmental disabilities/chronic illness and social environmental problems in the developing child within the family. Prerequisites: NURS 5442, 5328 or concurrent enrollment.
- 5444. ADVANCED NURSING CARE OF PEDIATRIC PATIENTS WITH COMPLEX PROBLEMS (2-6).** Clinical management of complex health problems of pediatric patients birth to 21 years within the family system. Prerequisites: NURS 5441, 5442 and 5328.
- 5445. GERONTOLOGICAL/ADULT NURSING I (2-6).** Theoretical study with applied clinical nursing judgment and management of adult and gerontological clients in health and illness. Prerequisite: NURS 5316, 5334 or concurrent enrollment.
- 5446. PALLIATIVE CARE NURSING I (2-6).** Synthesize the principles, philosophy, and issues of palliative care with models for

advanced practice decision-making in the management of pain and physical symptoms and the preservation of quality of life. Prerequisites: NURS 5203, 5305.

**5447. PALLIATIVE CARE NURSING II (2-6).** Focus on the interdisciplinary management and coordination of palliative care for complex patients in culturally diverse and medically fragile, high-risk populations. Emphasis on compassionate care of patients with end-stage disease across a variety of health settings and the support of their families through death and bereavement. Prerequisite: NURS 5446.

**5525. PSYCHIATRIC-MENTAL HEALTH NURSING (3-6).** Focus on diagnosis and pharmacological and nonpharmacological management of individuals, families and groups experiencing mental illnesses and addictions. Prerequisite: NURS 5424, 5328 or concurrent enrollment.

**5532. FAMILY NURSING II (3-6).** A continuation of NURS 5431 with progressive analysis and clinical nursing judgment and management of families in health and illness. Prerequisite: NURS 5431, 5328 or concurrent enrollment.

**5536. ACUTE CARE NURSING II (3-6).** Focuses on an interdisciplinary approach to the management and coordination of secondary and tertiary care for adults with complex multisystem dysfunction. Prerequisite: NURS 5435, 5328 or concurrent enrollment.

**5543. CHILD HEALTH NURSING II (3-6).** Theory and clinical management of school age children and adolescents with acute minor illness, development disabilities and social/environmental problems. Prerequisite: NURS 5442, 5328 or concurrent enrollment.

**5546. ADULT AND GERONTOLOGICAL NURSING (3-6).** Focus on advanced knowledge in the management of adults (age 12 and older), their families, and their communities with emphasis on special problems of the adolescent, women and older adults in a variety of settings. Prerequisite: NURS 5203, 5313, 5420, 5328 or concurrent enrollment or permission of instructor.

**5630. REGISTERED NURSE FIRST ASSISTANT (3-9).** Focuses on the delivery of care to surgical patients in all aspects of the surgical experience: preoperative, intraoperative, and postoperative. The course meets the requirements for RNs to assume the role of a registered nurse first assistant (RNFA). Prerequisite: Permission of the instructor.

**5926. PSYCHIATRIC-MENTAL HEALTH NURSING III (0-27).** Clinical preceptorship in selected practice settings. Application of theory and research in advanced psychiatric-mental health nursing practice. Prerequisite: NURS 5525.

**5933. FAMILY NURSING III (0-27).** Clinical preceptorship in selected primary health practice sites with opportunities to apply knowledge and concepts in a guided, progressive context of family nursing practice. Prerequisite: NURS 5432. Graded P/F/R.

**5937. ACUTE CARE NURSING III (0-27).** Clinical preceptorship in selected practice settings. Application of theory and research in advanced acute medical-surgical nursing practice. Prerequisite: NURS 5536.

**5944. CHILD HEALTH NURSING III (0-27).** Field study in pediatric primary health care in selected clinical settings with guidance from preceptors and faculty. Major focus is integration of theoretical concepts applied to clinical practice. Prerequisite: NURS 5443. Graded P/F/R.

**5947. GERONTOLOGICAL/ADULT NURSING III (0-27).** Clinical preceptorship in selected primary health practice sites with opportunities to apply knowledge and concepts in a guided, progressive context of gerontological nursing practice. Prerequisites: NURS 5446. Graded P/F/R.

**5170, 5270, 5370, 5470. INDEPENDENT STUDY IN NURSING.** Detailed in-depth study in a specific topic area. Topic and mode of

study are agreed upon by student(s) and instructor prior to registration. May be repeated for credit when topics vary. Graded P/F/R.

**5190, 5290, 5390, 5490, 5690. TOPICS IN NURSING.** Selected topics in advanced nursing. May be repeated for credit as topics change. **5331, 5631, 5931. ADVANCED CLINICAL NURSING PRACTICUM.** Clinical preceptorships in selected health practice sites with opportunities to apply knowledge, skills and concepts in a guided, progressive context of advanced nursing practice. The ratio of credit to clinical hours is 1:4. Graded P/F/R. Prerequisites: NURS 5313 or 5314, 5421 or 5422 or 5425 or 5431 or 5434 or 5436 or 5443 or 5447 or 5546 or approval of the Graduate Advisor.

**5398, 5698. THESIS.** 5398 graded R/F only, 5698 graded P/F/R.

**5670. INDEPENDENT STUDY IN NURSING (6-0).** Detailed in-depth study in a specific topic area. Topic and mode of study are agreed upon by student(s) and instructor prior to registration. May be repeated for credit when topics vary. Graded P/F/R.

**5696, 5996. INTERNSHIP IN NURSING ADMINISTRATION.** Exploration and participation in the role of a nurse administrator in planning, organizing, and analyzing nursing education or nursing service. Graded P/F/R. Prerequisite: approval of the Graduate Advisor.

**6101. DISSERTATION SEMINAR (1-0).** Problem solving and discussion of data collection, analysis and write-up of dissertation among students and interdisciplinary faculty. Prerequisite: Admission to candidacy for the Ph.D. in Nursing.

**6215. CONSULTATION STRATEGIES FOR ACADEMIC LEADERS SERVING DIVERSE AND VULNERABLE POPULATIONS (2-0).** Examines the consultation process in higher education; roles and responsibilities of the consultant. Prerequisite: Permission of instructor.

**6301. THEORETICAL EVOLUTION IN SCIENCE (3-0).** Philosophies of science and epistemologies, their influence on knowledge development for nursing practice, and strategies for theory development and analysis. Prerequisite: Graduate standing.

**6302. ISSUES IN STUDYING THE HEALTH OF CULTURALLY DIVERSE AND VULNERABLE POPULATIONS (3-0).** Social and cultural factors affecting health among sub-populations defined by age, education, gender, ethnicity, culture, religion, occupation, vulnerability, income and geography. Prerequisite: Graduate standing.

**6303. CULTURE OF SCIENCE (3-0).** Professional, financial, socio-political, ethical and legal issues associated with the conduct of research and the relationships between research and health policy development and implementation. Prerequisite: Graduate standing.

**6304. MEASUREMENT IN CULTURALLY DIVERSE AND VULNERABLE POPULATIONS (3-0).** Development and testing of validity and reliability of measurement instruments for use in studies of culturally diverse populations. Prerequisite: NURS 6303 or permission of instructor.

**6305. QUALITATIVE METHODOLOGIES (3-0).** Philosophical foundation for and methodological issues in using qualitative approaches for scientific and knowledge development. Prerequisite: NURS 6303 or permission of instructor.

**6306. DESIGNING AND TESTING INTERVENTIONS (3-0).** Application of advanced nursing research methods to design and test interventions focused on improving health outcomes in culturally diverse populations. Prerequisites: NURS 6303, NURS 6304 or permission of instructor.

**6308. RESEARCH SEMINAR (3-0).** Explores the research process with faculty guidance. Learning activities based on student and faculty interest. May be repeated to meet student learning needs. Prerequisite: Successful completion diagnostic evaluation.



**6309. SCIENTIFIC PRODUCTS: PREPARATION & DISSEMINATION (DELIVERY) (2-3).** Provides experiences in the development of scientific products for dissemination. Prerequisite: Graduate standing.

**6310. PROPOSAL DEVELOPMENT SEMINAR (3-0).** Development and critique of doctoral dissertation proposal among students and interdisciplinary faculty. Prerequisites: Successful completion of diagnostic evaluation, NURS 6308, plus 6 hours in portfolio. May be repeated until proposal successfully defended/admission to candidacy.

**6311. THE ACADEMIC ROLE IN HIGHER EDUCATION (3-0).** Roles and responsibilities of faculty in institutions of higher learning; analysis of issues affecting the professoriate in a rapidly changing society. Prerequisite: Graduate standing.

**6313. PREPARING NURSE EDUCATORS TO ASSIST STUDENTS FOR CARE OF DIVERSE AND VULNERABLE POPULATIONS (3-0).** Strategies for preparing nurse educators to assist students to care for a changing and diverse population. Prerequisite: NURS 6311 or concurrent enrollment.

**6314. CLINICAL RESEARCH: A NURSING PERSPECTIVE (3-0).** Focuses on the various components of health services research, and their interface with the discipline and practice of nursing. Prerequisite: NURS 6303 or permission of instructor.

**6315. FACULTY INTERNSHIP IN NURSING EDUCATION (0-9).** Seminar/practicum in implementation of selected aspect of the faculty role including classroom and clinical teaching at the undergraduate or graduate level; participation in faculty governance and selected faculty scholarly activities. Active guidance and supervision of a regular faculty member. Prerequisites: NURS 6311, 6313, Psychometric Theory Course or permission of instructor.

**6316. CLINICAL RESEARCH RESIDENCY (0-9).** Seminar/practicum in implementation of selected aspect of the clinical researcher

role including research practice in a clinical environment and participation in research activities. Active guidance and supervision of a clinical researcher. Prerequisites: NURS 6314 and 6317.

**6317. CONDUCT OF RESEARCH IN CLINICAL ENVIRONMENTS (3-0).** Addresses the methodological and sociopolitical influences affecting the conduct of clinical research. Prerequisite: NURS 6314.

**6402. EDUCATIONAL ADMINISTRATION IN A DIVERSE AND VULNERABLE SOCIETY (1-9).** Seminar/practicum in implementation of selected aspects of educational administrator's role; participation in departmental and interdepartmental activities under the guidance of an experienced administrator/mentor. Prerequisites: NURS 6311, 6313, 6315, Psychometric Theory Course or permission of instructor.

### Electives / Independent Study

Elective courses may be taken in an area of concentration in other departments.

**6170, 6270, 6370, 6470. INDEPENDENT STUDY IN NURSING.** Detailed in-depth study in a specific topic area. Topic and mode of study are agreed upon by student(s) and instructor prior to registration. May be repeated for credit when topics vary. Graded P/R/F.

**6190, 6290, 6390, 6490. TOPICS IN NURSING.** Selected topics in advanced nursing. May be repeated for credit as topics change.

**6399, 6699, 6999. DISSERTATION.** Prerequisite: Admission to candidacy for the Doctor in Nursing degree. 6399 and 6699 graded R/F only; 6999 graded P/R/F.

# The College of Science

Interim Dean: Paul Paulus, Ph.D.

206 Life Science Bldg. • Box 19047 • 817-272-3491 • [www.uta.edu/cos](http://www.uta.edu/cos)

## Mission and Philosophy

The College of Science graduate programs are committed to excellence in graduate education and research and contribute, along with other institutions in this country and throughout the world, to the expansion of scientific knowledge. Graduates of our programs are highly trained and educated scientists who will be able to contribute to the economic and social well-being of our state and nation.

## Overview

With outstanding departments of Biology, Chemistry and Biochemistry, Geology, Mathematics, Physics and Psychology, the College of Science offers comprehensive graduate studies with our world class faculty and research programs. In addition to providing our students with strong core training in the physical and life sciences, we have graduate programs in Environmental Science and Engineering, Materials Science and Engineering and offer specialized Masters degrees for educators to expand their core science training. Interdisciplinary programs and Research Centers provide students with opportunities to span disciplines, and student research activities are complemented by excellent research facilities and state-of-the-art instrumentation. The College and Departments host a series of seminars to further expose our students to cutting edge science developments.

Master's degrees are offered in all of our departments, and we award Ph.D. degrees in Quantitative Biology, Applied Chemistry, Geology and Mathematical Sciences, Mathematics, Applied Physics, Experimental Psychology, Environmental Science and Engineering and Materials Science and Engineering. For application and entrance requirements, or more on our graduate programs, please call us or visit our Web site at [www.uta.edu/cos](http://www.uta.edu/cos).

## Scholastic Activity and Research

### Interests of the Faculty

#### Biology

The Department of Biology has a wide array of research programs ranging from molecular through population levels of integration. The program boasts strength in microbiology, molecular biology, aquatic biology, evolution, systematics, animal physiology, ecology and behavior, and has active funding from a variety of private and public agencies. The department also hosts centers for parasitology, biological macrofouling, electron microscopy and a collection of vertebrates. The research program emphasizes quantitative aspects of biology and provides students with strong training in statistics and experimental design.

#### Chemistry and Biochemistry

Research programs include synthetic work on natural products, medically active agents, novel ligands, new catalysts, luminescent materials, photocatalysts, supramolecular and metallosupramolecular compounds, molecular magnetism, molecular recognition, stabilization of reactive intermediates, solar energy conversion and electrically conducting polymers. Biochemical research includes studies of enzymology and molecular biology of bacterial metabolism, and studies on problems involved in anticancer therapy. Physical, analytical and electrochemical research includes studies of colloids and surfaces, electrode modification through thin film surface deposition, MALDI mass spectrometry and characterization of the electrical properties of polymers and other materials. Theoretical studies involve both a major computational program applying molecular orbital theory to a variety of problems.

#### Geology

Department research has a strong orientation toward the application of geochemistry, geophysics and paleobiology to earth resources and the environment. Current research interests include analysis and modeling of geologic deformational structures, landsliding, nautiloid paleobiogeography for Siluro-Devonian terranes, spectral sedimentology, continental faults, environmental and archeological studies, shales, accreted rock formations and plate tectonics.

#### Mathematics

**Algebra:** homological theory of commutative Noetherian rings; noncommutative algebra using geometric methods; symbolic computations.

**Differential Equations, Integral Equations and Dynamical Systems:** geometric study of integrable Hamiltonian systems; stability and instability of solitary waves; nonlinear dispersive waves; free boundary problems related to phase transition and multi-fluid flow; stochastic differential equations; control theory.

**Cooperative Game Theory:** semivalues, least square values, properties, potentials and computation; the inverse problem.

**Geometry:** birational algebraic geometry and Mori theory; differential geometry and inverse spectral geometry; finite geometry related to nonassociative division algebras.

**Mathematical Biology:** mathematical modeling of microbial populations, biofilms and competition dynamics; population biology and epidermology; neuronal dynamics.

**Mathematical Statistics, Probability Theory and Stochastic Process:** multivariate analysis, statistical inference, sample survey and statistical process control; stochastic processes and applications to stochastic differential equations, random graphs, path integrals, quantum mechanics.

**Mathematical Education:** mathematics program development, impact of reform mathematics learning strategies on mathematics teaching, mathematics problem solving for teaching.

**Numerical Analysis:** numerical solutions to ordinary and partial differential equations; moving grid, multigrid and multilevel adaptive methods; fluid dynamics (mechanics); numerical simulation and scientific computation; numerical combustion; software development.

## Physics

Current research in the department is primarily in the areas of condensed matter physics, materials science and high energy physics. The theoretical condensed matter group is engaged in cluster, electron transport, electronic structure, molecular dynamics and path integral computations having relevance to the chemical, electrical and magnetic properties of surfaces, metals and semiconductors. The experimental condensed matter group is engaged in studies of diamond coatings, magnetic multilayers, metals, semiconductors and surfaces using electron, positron, optical and magnetic resonance spectroscopies. The experimental high energy group is involved in collider experiments at Fermilab, Brookhaven Laboratory and CERN to study QCD and to search for supersymmetry and other physics beyond the standard model. Other active research areas include high energy theory, optics, parallel computing and statistical physics.

## Psychology

Expertise and research activity include animal behavior, animal and human learning, cognitive processes, social psychology, psychobiology and developmental psychology. Current research interests include group brainstorming, verbal memory and neuropsychology, applied psychological measurement, pain systems, decision processes, naturalistic social cognition, stress, genetic and hormonal determinants of aggressive and defensive behaviors and parent-offspring interactions, sea turtle behavior, and infant mental representation of objects.

## Science Education

The Master of Arts in Interdisciplinary Science (MAIS), a 36 credit hour degree program without a thesis requirement, was designed and developed by science teachers for science teachers. The program will help science educators strengthen and update their knowledge of content in two or more of the following cognate areas: biology, chemistry, geology, mathematics, and physics. In addition to enhancing content knowledge, the courses will help educators develop teaching

strategies that lead to improved student learning, implement high quality instructional materials, and develop skills in using various strategies for assessing student learning. The MAIS degree will serve the needs of classroom teachers, content-area and staff development specialists, curriculum developers, program directors, school administrators, college/university faculty, and educators from informal science institutions who have responsibility for designing, delivering, evaluating, and/or continuously improving standards-based science, mathematics, and technology instruction for students, prekindergarten through the undergraduate degree.

While engaging in the coursework, educators will become learners themselves to deepen their own mastery of scientific and/or mathematical content. The laboratory-based learning activities in the program will help science educators see teaching as less a matter of knowledge transfer and more as an activity of facilitation in which knowledge is generated, content is investigated in depth, and meaning is developed from experience. Graduates of the program will take their place as master science educators who are recognized as proven practitioners in delivering rigorous and relevant instruction and are valued as effective coaches, mentors, and teacher trainers.

## Master of Science Degrees

Biology  
Chemistry  
Geology (Both Thesis and Non-thesis)  
Mathematics  
Physics  
Psychology

## Master of Arts Degree

Interdisciplinary Science (Non-thesis)

## Doctoral Degrees

Chemistry  
Experimental Psychology  
Physics and Applied Physics  
Quantitative Biology  
Mathematics  
Mathematical Sciences (Interdisciplinary: Math, Biology, Chemistry, Geology, Physics)  
Environmental Science and Engineering (Interdisciplinary: Biology, Chemistry, Geology)

# Department of Biology

[www.uta.edu/biology](http://www.uta.edu/biology)

## Areas of Study and Degrees

Biology

M.S.

Quantitative Biology

Ph.D.

Mathematical Sciences

Ph.D.

(See Interdepartmental and Intercampus Programs.)

## Master's Degree Plans

Thesis and Non-Thesis

## Chair

Jonathan A. Campbell

337 Life Science, 817-272-2871

## Graduate Advisor

Daniel Formanowicz

349 Life Science, 817-272-2422

## Graduate Faculty

### Professors

Arnott, Bacon, Campbell,

Chrzanowski, Formanowicz,

Frye, Hellier, McMahon,

Neill, Robinson

### Associate Professors

Bernard, Chippindale, Grover

### Assistant Professors

Betran, Burleson, Gough,

Marshall, Michalak,

Passy, Roner, Smith,

van Waasbergen, Wilk-Blaszczak

### Professor Emeritus

Pyburn

## Objective

The program leading to the degree of Master of Science in biology is designed to provide graduate education which will prepare students for vocations in industry, government, and teaching, and to pursue further graduate education leading to the doctorate. The doctoral program is designed to train students to apply sophisticated quantitative techniques to solving basic and applied problems in biology. Students in this program will attain substantially greater quantitative skills than in traditional doctoral programs in the biological sciences, providing them with a competitive advantage in business, industry, government, and academia.

## Admission

### Master of Science

Admission status in the Master of Science program is determined as follows:

### Unconditional Admission

Decisions are based on consideration of all the information listed below and are not based on any single criterion alone.

1. A Bachelor's degree in Biology or a Bachelor's degree in some other discipline with at least 12 hours of advanced level coursework (junior or senior level courses) in Biology.
2. A minimum undergraduate GPA of 3.0 on a 4.0 scale, as calculated by the Graduate School. Applicants overall GPA in the Sciences and within Biology are also considered.
3. A satisfactory score on the Verbal and Quantitative sections of the Graduate Record Exam.
4. Favorable letters of recommendation from at least three individuals able to assess the applicant's potential for success in graduate school.
5. Evidence of previous research experience may also be considered.
6. International students whose native language is not English must provide a score on the Test of Spoken English (TSE) of at least 45.

### Denial of Admission

A candidate may be denied admission if they have less than satisfactory performance on a majority of the admission criteria listed above.

### Probationary Admission

If an applicant does not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in their first 12 hours of graduate coursework at UTA.

### Deferred and Provisional Admission

A deferred application decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

### Fellowships and Scholarships

Students that are unconditionally admitted will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UTA in the Fall semester, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain their fellowships.

### Doctor of Philosophy

Admission status in the doctoral program is determined as follows:  
Unconditional Admission

Decisions are based on consideration of all the information listed below and are not based on any single criterion alone.

1. A master's degree in Biology or at least 30 hours of graduate level coursework in Biology.
2. A minimum undergraduate GPA of 3.0 on a 4.0 scale, as calculated by the Graduate School. If an Applicant has a Master's degree, the GPA from their Bachelor's degree, as calculated by the Graduate School, will also be considered. If they have 30 hours of graduate coursework but no degree, the GPA from that 30 hours, as calculated by the Graduate School, will also be considered.
3. A satisfactory score on the Verbal and Quantitative sections of the Graduate Record Exam.
4. Favorable letters of recommendation from at least three individuals able to assess the applicant's potential for success in a doctoral program in quantitative biology.
5. Evidence of previous research experience including publications resulting from previous graduate work may also be considered.
6. International students whose native language is not English must provide a score on the Test of Spoken English (TSE) of at least 45.

### Denial of Admission

A candidate may be denied admission if they have less than satisfactory performance on a majority of the admission criteria listed above.

### Probationary Admission

The Department of Biology does not as a matter of course admit doctoral students on a probationary basis. Under exceptional circumstances, an applicant that does not meet the standards for unconditional admission outlined above, may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in their first 12 hours of graduate coursework at UTA.

### Deferred and Provisional Admission

A deferred application decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

### Fellowships and Scholarships

Students that have no provisional admission conditions to meet will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on the same criteria

utilized in admission decisions. To be eligible, candidates must be new students coming to UTA in the Fall semester, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain their fellowships.

## Degree Requirements

Supporting work outside the student's major area may be taken in botany, chemistry, geology, mathematics, microbiology, physics, and zoology. Approved courses in city and regional planning, civil engineering, environmental science and engineering, philosophy, psychology, and sociology may also be taken in support of the student's program. Subject to written approval by the Graduate Advisor and within the limitations stated in the General Graduate School Regulations, a student may take up to nine hours of coursework from among courses listed under Biology at the 3000 or 4000 levels.

### Master of Science

Non-thesis and thesis options are offered. The non-thesis option is designed to meet the needs of practicing teachers or those intending to enter the teaching profession. Students enrolled in the non-thesis option are required to complete 36 hours, including 24 hours of formal coursework in biology plus two hours of 5101, 5391, and sufficient additional hours to complete course requirements. Students enrolled in the thesis option are required to complete 30 hours, including 18 hours of formal coursework, two hours of 5101, 5698, and sufficient additional hours to complete degree requirements.

### Doctor of Philosophy

The degree of Doctor of Philosophy in Quantitative Biology requires distinguished attainment both in scholarship and in research. In addition to meeting the minimum requirements of a planned course of study, the ultimate basis for conferring the degree must be the demonstrated ability to do independent and creative work and the exhibition of a profound grasp of the subject matter within the field.

**Foreign Language:** Students will be required to demonstrate proficiency in one foreign language or in computer skills above that required for entry into the program.

**Course Requirements:** A total of 60 hours of coursework should normally be completed including 18 hours of required courses, 12 hours of electives, and 30 hours of seminar and research courses. All students in the program are required to take BIOL 5314 (Biometry), BIOL 5361 (Advanced Biometry), and BIOL 5362 (Experimental Design and Analysis). Students must take 9 hours from among the following courses in quantitative biology: BIOL 5305 (Techniques in Microbial and Molecular Genetics), BIOL 5306 (Bioenergetics), BIOL 5312 (Advanced Genetics), BIOL 5316 (Advanced Evolutionary Biology), BIOL 5326 (Wetlands Ecology), BIOL 5327 (Quantitative Ecological Analysis), BIOL 5328 (Landscape Ecology), BIOL 5333 (Biological Modeling), BIOL 5335 (Essentials of Genomics), BIOL 5336 (Molecular Evolution), BIOL 5337 (Behavioral Ecology), BIOL 5363 (Quantitative Approaches to Physiology), BIOL 5364 (Population Genetics), BIOL 5365 (Image Analysis), or BIOL 5367 (Theoretical Systematics). Twelve hours of electives may be selected by students under supervision of their dissertation committee from among courses listed below in the department's course offerings. Finally,

30 hours of seminars and research, including 9 hours of dissertation in the final semester (BIOL 6999), are required from among the following courses: BIOL 5101, 5200, 5291, 5391, 5193-5693, 5398, 5698, or 5998, or BIOL 6191, 6291, 6391, 6491, 6591, or 6691 (can be repeated for credit).

Animal Behavior Option: Study in the area of animal behavior is offered jointly by biology and psychology graduate programs. See Psychology section of the catalog.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Biology (BIOL)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5101. SPECIAL TOPICS IN BIOLOGY (1-0).** Seminar on significant biological research. May be repeated for credit. Prerequisite: consent of the instructor.

**5102. PRESENTATION METHODS (1-0).** Introduction on preparation of scientific talks and poster presentations, including graphics, biological illustration, banner making, preparation of graphics slides and scientific photography.

**5103. COMPUTER APPLICATIONS (1-0).** An introduction to the software applications needed to collect and analyze data, prepare scientific papers and present research findings. Both Macintosh and PC platform applications will be reviewed.

**5104. GRANT PROPOSAL WRITING (1-0).** Methods of preparation of research proposals to granting agencies, including: use of library research facilities; standard proposal formats; elements of successful proposals; survey of funding agencies in the biological sciences.

**5105. RESEARCH SEMINAR I (1-0).** Once during a student's first semester for attending a seminar series of talks by Biology Department faculty and graduate students.

**5106. RESEARCH SEMINAR II (1-0).** For attending a seminar series of talks by Biology Department faculty and graduate students. Students enrolling in Research Seminar II will be required to present a seminar on the results of their graduate research.

**5302. MICROBIAL GENETICS (3-0).** Consideration of the nature, expression and regulation of the genetic processes in micro-organisms. Prerequisites: BIOL 2451 and 3315 or consent of the instructor.

**5303. MOLECULAR GENETICS (3-0).** Study of molecular genetics with emphasis on eucaryotic systems including DNA structure and chromosome arrangement: molecular evolution, and gene regulation and expression. Prerequisites: BIOL 3315 or consent of the instructor.

**5304. VIROLOGY (3-0).** The nature, reproduction and host-cell interactions of viruses and animals. Emphasizes molecular aspects of viral replication and the molecular basis of pathogenesis. Prerequisite: consent of the instructor.

**5305. TECHNIQUES IN MICROBIAL AND MOLECULAR GENETICS (1-5).** Laboratory based techniques course focusing on current methods in microbial and molecular genetics. Prerequisites: BIOL 4302 or equivalent and consent of the instructor.

**5306. BIOENERGETICS (3-0).** The use of quantitative analysis of energy resource partitioning to study the evolution of adaptational strategy at the cellular, individual and population levels, including quantitative analysis of physiological processes and life history adaptations in terms of energetic efficiency. Prerequisite: consent of the instructor.

**5309. HISTORY OF BIOLOGY (3-0).** Trends of thought in the biological sciences with emphasis on notable contributors. Philosophical systems dealing with biological concepts in western civilization are stressed. Prerequisite: consent of the instructor.

**5310. SELECTED TOPICS IN BIOLOGY (3-0).** Topics may vary depending on the needs and interests of the students. May be repeated for credit. Prerequisite: consent of the student's thesis committee and the current course instructor.

**5311. EVOLUTION (3-0).** Study of the origin of living systems and the mechanism of their evolution. Prerequisite: BIOL 3315 or equivalent or consent of the instructor.

**5312. ADVANCED GENETICS (3-0).** Mechanisms of transmission and function of genetic material. Covers fundamental concepts in transmission genetics including: genotype/phenotype relationships; inheritance; linkage; genome organization; and gene expression. Experimental and quantitative approaches to genetic analyses are emphasized. Prerequisite: consent of the instructor.

**5313. IMMUNITY TO PARASITES (3-0).** Immune responses of invertebrates and vertebrates to protozoan and metazoan parasites. Emphasis on mechanisms by which parasites modify immunological responsiveness of hosts. Prerequisite: BIOL 3312 or consent of the instructor.

**5314. BIOMETRY (3-0).** An examination of statistical methods and procedures in relation to the design of biological experiments and the analysis of their results. Prerequisite: consent of the instructor.

**5315. COMMUNITY ECOLOGY (3-0).** An investigation of the effects of interspecific interactions on the distribution and abundance of organisms. Prerequisite: consent of the instructor.

**5316. ADVANCED EVOLUTIONARY BIOLOGY (3-0).** An analysis of existing biological phenomena with regard to their selective advantage in biological systems. Prerequisite: BIOL 5311 or consent of the instructor.

**5320. BIOGEOGRAPHY (3-0).** The role of natural and artificial transport, population pressure and limiting agencies are examined in the light of the patterns of distribution of living organisms. Prerequisite: consent of the instructor.

**5325. PLANT ECOLOGY (3-0).** An introduction to plant ecology including physiological, population, community and ecosystem ecology.

**5326. WETLANDS ECOLOGY (3-0).** An introduction to wetland ecology including the formation of wetlands, biogeochemistry of

wetland soils, hydrology and biotic adaptations to wetland environments.

**5327. QUANTITATIVE ECOLOGICAL ANALYSIS (3-0).** A presentation of quantitative methods used in the design of experiments, collection and analysis of data associated with research in population, community and landscape ecology.

**5328. LANDSCAPE ECOLOGY (3-0).** Landscape ecology focuses on the spatial organization of the landscape mosaic and the flows of energy, nutrients, and species among landscape elements and ecosystems.

**5333. BIOLOGICAL MODELING (3-0).** Computational and mathematical techniques for representing biological processes, including dynamical systems, simulation, and stochastic processes, using examples from ecology, evolution and other areas of biology. Prerequisite: consent of the instructor.

**5335. ESSENTIALS OF GENOMICS (3-0).** An integrative approach to genome science, combining elements of genetics, statistics and bioinformatics. Current technologies used in genomics analysis will be presented.

**5336. MOLECULAR EVOLUTION (3-0).** An exploration of how genes and genomes evolve at the molecular level. The presentation uses the theoretical framework provided by population genetics to analyze molecular biology data.

**5337. BEHAVIORAL ECOLOGY (3-0).** Introduction to predictive modeling techniques used in studying behavior and ecology of animals. Includes optimization, dynamic optimization, utility theory, and game theory. Prerequisite: consent of the instructor.

**5338. ENDOCRINOLOGY (3-0).** An exploration of the vertebrate endocrine system with emphasis on cellular origin of hormones, hormone roles in physiological regulation and hormonal mechanisms of cellular action. Prerequisites: Biology 3301 or 3442 or consent of the instructor.

**5339. ENVIRONMENTAL PHYSIOLOGY (3-0).** Survey of the physiological adaptations of animals to their environments. Emphasizes physiological mechanisms and evolutionary changes that allow animals to survive under and respond to a variety of environmental conditions. Prerequisite: BIOL 3442 or equivalent or consent of the instructor.

**5341. PRINCIPLES OF NEUROSCIENCE (3-0).** Organization and function of the mammalian nervous system including: sensory functions, motor activity, regulation of autonomic function, memory and association. Prerequisites: three hours of advanced physiology courses or consent of the instructor.

**5342. ICHTHYOLOGY (2-3).** Classification, anatomy, physiology and natural history of fishes. Prerequisite: consent of the instructor.

**5343. REPTILE BIOLOGY (2-3).** Diversity, systematics, distribution and behavior of major groups of reptiles. Laboratory includes museum techniques, identification and anatomical study. Prerequisite: consent of the instructor.

**5344. AMPHIBIAN BIOLOGY (2-3).** Diversity, systematics and behavior of major groups of amphibians. Laboratory includes museum techniques, identification and anatomical study. Prerequisites: consent of the instructor.

**5345. ORNITHOLOGY (2-3).** Anatomy, physiology, identification, population dynamics and ethology of birds. Laboratory includes field identification, preparation of specimens, and field study techniques. A weekend field trip is required. Prerequisite: consent of the instructor.

**5348. ENVIRONMENTAL BIOLOGY (2-3).** Examines major environmental problems that affect biological systems with an emphasis

on problem solving. Includes a survey of potential employment opportunities for biologists in environmentally related fields. A weekend field trip is required. Prerequisite: consent of the instructor.

**5350. CONSERVATION BIOLOGY (3-0).** Theory and practice of conservation biology, with emphasis on applications of modern quantitative and molecular genetic techniques to preservation of organisms and habitats. Includes: identification and prioritization of units for protection; conservation genetics; preserve design; public policy; and current case studies. Prerequisites: BIOL 3315 or equivalent or consent of the instructor.

**5351. ENVIRONMENTAL MICROBIOLOGY (3-0).** Principles, methodology, and practical applications of environmental microbiology. Topics include: habitat and community approaches to environmental microbiology; measures of microbial populations and activities; interactions among microbial communities; role of microorganisms in the origin of mineral resources and pollution and energy flow through microbial communities. Prerequisite: BIOL 3444 or equivalent or consent of the instructor.

**5353. SCANNING ELECTRON MICROSCOPY (1-4).** Principles and operation of the Scanning Electron Microscope (SEM). Training in the use of the JEOL JSM SEM. Specimen preparation for SEM included in the lectures and laboratory. Open to non-biologists. Prerequisite: consent of the instructor.

**5354. LIMNOLOGY (3-0).** The study of biotic and abiotic components of inland waters. Prerequisite: consent of the instructor.

**5355. AQUATIC BIOLOGY (2-3).** Ecological relationships of organisms in freshwater and marine ecosystems. Prerequisite: consent of the instructor.

**5361. ADVANCED BIOMETRY (3-0).** Introduction to various computerized statistical application packages. Topics include multiple regression analysis, path analysis, partial correlation, residual analysis, and various techniques useful for data analysis. Prerequisite: BIOL 5314 or consent of the instructor.

**5362. EXPERIMENTAL DESIGN (3-0).** Various analysis of variance models will be explored including hierarchic models, multiway factorial models, Latin square designs, split plots designs, and incomplete block designs. Nonparametric methodologies and analysis of covariance techniques will also be presented. Prerequisite: BIOL 5314 or consent of the instructor.

**5363. QUANTITATIVE APPROACHES TO PHYSIOLOGY (2-3).** Advanced methodologies for the analysis of physiological systems. Quantitative aspects of transport, respiration, electrophysiology, and cardiovascular physiology. Laboratory will emphasize practical measurement methodologies and principles of physiological measurement and instrumentation. Prerequisite: consent of the instructor.

**5364. POPULATION GENETICS (3-0).** The genetics of evolution with emphasis on measuring, predicting, and modeling genetic change in populations. Prerequisite: consent of the instructor.

**5365. IMAGE ANALYSIS (2-3).** Quantitative methods used in the analysis of microscopical and other types of biological images. Images studied will be obtained from light and electron micrographs, energy dispersive electron analysis maps and normal, aerial, and laboratory photography. Prerequisite: consent of the instructor.

**5367. THEORETICAL SYSTEMATICS (3-0).** Introduction to the study of organismal diversity and evolutionary relationships. Emphasizes quantitative methods for phylogeny reconstruction, and

interpretation and application of molecular data. Prerequisites: BIOL 3315 and BIOL 3339 or equivalents, or consent of the instructor.

**5291, 5391. INDIVIDUAL PROBLEMS IN BIOLOGY.** Individual research projects supervised by a faculty member. Prerequisite: consent of the instructor.

**5410. BIOLOGICAL TECHNIQUES (1-4).** Students will study the basic laboratory and field research techniques utilized in a wide variety of biological research areas. Prerequisite: consent of the instructor.

**5420. BIOLOGY ROTATIONS (1-4).** Students study biological research techniques in detail in the laboratories of three different Biology Department faculty members. Faculty laboratories involved will vary each time that it is offered. Prerequisite: consent of the instructor.

**5442. EXPERIMENTAL ANIMAL PHYSIOLOGY (3-3).** An integrative study of physiological mechanisms at molecular, cellular, tissue, organ and organismal levels. Focuses on nervous system and neuronal regulation of major physiological systems (i.e., cardiovascular, ventilatory, muscular) and responses to environmental variables. Laboratory complements lecture, stressing physiological techniques and experimental design, computer data acquisition, and data analysis and presentation. Prerequisite: consent of the instructor.

**5449. PARASITOLOGY (3-3).** Lecture deals with ecology of parasites, morphologic and physiologic adaptations to a parasitic way of life, host adaptations to parasitism, and effects of parasites on hosts. Laboratory deals with clinical and veterinary parasitology, animal dissections, diagnosis of parasitic infections, and identification of parasites. Prerequisite: 16 hours of laboratory biology or consent of the instructor.

**5193-5693. RESEARCH IN BIOLOGY.** Conference course in which the student undertakes intensive investigation of topics under the supervision of a staff member. Prerequisite: consent of the instructor. Graded P/F/R.

**5398, 5698, 5998. THESIS.** 5398 graded R/F only; 5698 and 5998 graded P/F/R. Prerequisite: consent of faculty.

**6191-6691. ADVANCED RESEARCH.** Faculty supervised individual research. May be repeated for credit. Graded P/F/R.

**6399-6999. DISSERTATION.** 6399 and 6699 graded R/F only; 6999 graded P/F/R. Prerequisite: admission to candidacy for the degree Doctor of Philosophy in Quantitative Biology.



## Objective: Master of Science

The objectives of the Chemistry and Biochemistry Department's program leading to the Master of Science degree include (a) developing the individual's ability to do independent research, (b) preparing students for more advanced study in chemistry and (c) providing advanced training to professional chemists and those employed in technical and business areas in which chemistry at this level is necessary for efficient performance. Research areas include analytical chemistry, biochemistry, bioinorganic chemistry, colloid and surface chemistry, electrochemistry, inorganic chemistry, medicinal chemistry, organic chemistry, physical chemistry, polymer chemistry, and theoretical chemistry.

## Admission Criteria

In evaluating candidates for admission to its graduate degree programs, the Department of Chemistry and Biochemistry emphasizes the preparedness of the student as evidenced by quality and quantity of coursework and the student's previous research experience. Recommendations from our own faculty, based on firsthand knowledge of the applicant or a faculty member at the applicant's institution, are also very important.

### Unconditional Admission

Unconditional admission may be granted under any one of the following options. The minimum undergraduate GPA requirement for all options is 3.0, as calculated by the Graduate School.

#### Option 1

A satisfactory completion of a Bachelor's degree or equivalent, official transcripts, and GRE scores, and three letters of recommendation. An applicant whose native language is not English must submit a TOEFL score of at least 550 or a score of at least 213 on the computer-based test. The TSE-A (score of 45 or higher) can be substituted for the TOEFL.

#### Option 2

A satisfactory completion of a Bachelor's degree or equivalent, official transcripts, and a letter of recommendation from a faculty member at the applicant's undergraduate institution, *plus a recommendation from a UTA Chemistry and Biochemistry faculty member*. An applicant whose native language is not English must submit a TOEFL score of at least 550 or a score of at least 213 on the computer-based test. A TSE-A score of 45 or higher can be substituted for the TOEFL. Those who have completed their undergraduate education in English may be *eligible for a TOEFL waiver* based on the recommendation letters.

#### Option 3

A satisfactory completion of a bachelor's degree or equivalent, official transcripts, and a letter of recommendation from a faculty member at the undergraduate institution, *plus a recommendation from a UTA Chemistry and Biochemistry faculty member based on a face-to-face interview*. An applicant whose native language is not English must submit a TOEFL score of at least 550 or a score of at least 213 on the computer-based test. A TSE-A score of 45 or higher can be substituted for the TOEFL. Those who have completed their undergraduate education in English may be *eligible for a TOEFL waiver* based on the recommendation letters.

## Department of Chemistry and Biochemistry

[www.uta.edu/chemistry](http://www.uta.edu/chemistry)  
[chemgrad@uta.edu](mailto:chemgrad@uta.edu)

### Areas of Study and Degrees

Chemistry

M.S.

Chemistry

Ph.D.

Mathematical Sciences

Ph.D.

(See Interdepartmental and Intercampus Programs.)

### Master's Degree Plans

Thesis, Thesis Substitute and Non-Thesis

### Interim Chair

Edward Bellion

219 Science Hall, 817-272-3171

### Graduate Advisor

Rasika Dias

305 Chemistry Research Building, 817-272-3813

### Graduate Faculty

Professors

Awasthi, Bellion, Dias,  
Elsenbaumer, Marynick,  
Pomerantz, Rajeshwar,  
Schelly, Timmons

Associate Professors

Kinsel, Lovely,  
MacDonnell, Rudkevich

### Provisional Admission

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

### Probationary Admission

In rare cases, probationary admission may be granted as the result of a substandard performance on one or more of the admission criteria. In this case, the Graduate Advisor will set additional conditions for admission including, but not limited to, additional undergraduate coursework and/or achieving a B or better in the first 9 hours of graduate coursework.

### Denial of Admission

A candidate may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above.

### Eligibility for Scholarships/Fellowships

Students that have no provisional admission conditions to meet will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UTA in the Fall semester, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain their fellowships. (Students with graduate teaching or research assistantships, however, must be enrolled in a minimum of 9 hours of coursework in both long semesters and 6 hours of coursework in the summer sessions.)

## Master's Degree Requirements

A candidate for graduate study must satisfy the general admission requirements of the program.

### Master's Degree with Thesis

A minimum of 18 hours in chemistry from courses listed in the Graduate Catalog will be required. Twelve of these hours should be from Chemistry 5301, 5303, 5309, 5311, 5315, and 5318. Electives may be senior or graduate division courses in a science or engineering subject selected by the candidate with the approval of the graduate advisor.

### Master's Degree with Thesis Substitute

Admission to the program requires approval of the Graduate Studies Committee. Minimal registration in a project course (CHEM 5391 or 5691 or CHEM 5392 or 5692) is also required. At the time the degree is awarded the candidate is expected to have completed at least five years of suitable professional experience in an industrial, government, or other chemistry laboratory.

All potential applicants must contact the Graduate Advisor prior to registration.

### Master's Degree Non-Thesis

This option requires a minimum of 36 hours of coursework of which at least 24 hours must be in chemistry. All courses must be approved by the graduate advisor.

## Objective: Ph.D. in Mathematical Sciences/Chemistry Option

The program leading to the Doctor of Philosophy degree in mathematical sciences/chemistry option is designed primarily to prepare chemists for research and teaching careers which involve the theoretical and mathematical aspects of chemistry. For further details, see Interdepartmental and Intercampus Programs.

## Objective: Ph.D. in Chemistry

The program leading to the Doctor of Philosophy degree in Chemistry is designed primarily to prepare doctoral-level chemists for industrial research careers. The student must (1) demonstrate the ability to carry out independent research; and (2) acquire the practical knowledge of the type of research conducted in industry and of the constraints (both practical and philosophical) under which such research is conducted. The areas of research include analytical chemistry, biochemistry, bioinorganic chemistry, colloid and surface chemistry, electrochemistry, inorganic chemistry, medicinal chemistry, organic chemistry, organometallic chemistry, physical chemistry, polymer chemistry, and theoretical chemistry.

## Ph.D. Degree Requirements

To be admitted to the Ph.D. program, an applicant must satisfy the general admission requirements of the program and his or her academic record must show preparation for advanced work in chemistry.

Each candidate must complete the following program requirements:

1. Core courses for students emphasizing organic chemistry.

*Three from:*

CHEM 5303 Quantum Chemistry and CHEM 5180

Quantum Chemistry Laboratory

CHEM 5311 Analytical Chemistry

CHEM 5315 Inorganic Chemistry

CHEM 5318 Principles of Biochemistry

*Plus:*

CHEM 5308 Determination of Molecular Structure by Physical Methods

CHEM 5309 Organic Chemistry I

CHEM 5310 Organic Chemistry II

CHEM 5312 Advanced Organic Synthesis

*Plus: one of the courses listed in item 6.*

2. Core courses for students emphasizing physical or analytical chemistry.

CHEM 5301 Physical Chemistry I

CHEM 5302 Physical Chemistry II

*Plus three from:*

CHEM 5309 Organic Chemistry I

CHEM 5311 Analytical Chemistry

CHEM 5315 Inorganic Chemistry

CHEM 5318 Principles of Biochemistry

*Plus: One of the courses listed in item 6.*

3. Students emphasizing biochemistry who have not had one full year of General Biochemistry must also take the following courses BEFORE taking CHEM 5321, 5325, and 5327:  
CHEM 5318 Principles of Biochemistry

or

- CHEM 5319 General Biochemistry I  
 CHEM 5320 General Biochemistry II  
 Core courses for students emphasizing biochemistry.  
 CHEM 5311 Analytical Chemistry  
 CHEM 5321 Metabolism and Regulation  
 CHEM 5325 Enzymology  
 CHEM 5327 Biochemical Genetics

*Plus one from:*

- CHEM 5303 Quantum Chemistry and CHEM 5180  
 Quantum Chemistry Laboratory  
 CHEM 5309 Organic Chemistry I  
 CHEM 5315 Inorganic Chemistry

*Plus: One of the courses listed in item 6.*

4. Core courses for students emphasizing inorganic chemistry:

CHEM 5315 Inorganic Chemistry

*Plus three from:*

- CHEM 5303 Quantum Chemistry and CHEM 5180  
 Quantum Chemistry Laboratory  
 CHEM 5309 Organic Chemistry I  
 CHEM 5311 Analytical Chemistry  
 CHEM 5318 Principles of Biochemistry

*Plus: One of the courses listed in item 6.*

5. Core courses for students emphasizing polymer chemistry:

a. All core courses for any of the other emphasis areas 1-4

*Plus:*

b. CHEM 5350 Advanced Polymer Chemistry

*Plus: One of the courses listed in item 6.*

6. CHEM 6104, 6304 or 6904. Chemistry Internship. Each student is required to spend three months in a nonacademic chemical laboratory; credit may be given for a student's previous industrial research experience.

7. Additional research and elective courses chosen according to the student's dissertation topic and area of specialization under the guidance of the supervising committee.

A course grade may be used to satisfy degree requirements for no more than seven years after the course has been completed.

After admission to the doctoral program the student must successfully complete the appropriate examination(s) required by the faculty of the student's discipline.

A supplementary set of guidelines, published by the Department of Chemistry and Biochemistry, should be consulted.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information

for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Chemistry (CHEM)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5101. SEMINAR IN CHEMISTRY (1-0).** Two semesters of registration required of all graduate students. May not be counted for credit toward the degree requirements. Every student is expected to present one seminar to the Chemistry Department during the two-semester period. Includes learning how to prepare, present, and defend an oral presentation. Seminar topics are selected with the assistance of the instructor and may include both pure and applied chemistry. Graded P/F only.

**5180. QUANTUM CHEMISTRY LABORATORY (0-4).** Molecular modeling. Application of various computational techniques to chemical problems, including determination of molecular geometry, conformational analysis, and molecular energetics. Prerequisite: concurrent enrollment in CHEM 5303.

**5300. SELECTED TOPICS IN ADVANCED CHEMISTRY (3-0).** The area may vary (typically analytical, applied, biological, colloid, environmental, inorganic, organic, physical, polymer, materials, theoretical, etc.) and will be announced in advance. More than one area may be covered simultaneously, in parallel courses offered under different section numbers. May be repeated for credit when area or topics vary. Prerequisite: permission of instructor.

**5301. PHYSICAL CHEMISTRY I (3-0).** An introduction to the basic principles of quantum mechanics including Schrödinger and Heisenberg formulations, basic postulates, operator algebra, exact solutions of model problems, approximation methods, group theory, and spin systems. Application of quantum mechanics for spectroscopy including time dependent perturbation theory, selection rules, and a survey of electronic, ESR, NMR, rotational, and vibrational spectroscopies. Emphasis will be placed on relevance to molecular structure, chemical dynamics, and materials science.

**5302. PHYSICAL CHEMISTRY II (3-0).** Thermodynamics, equilibrium, and introduction to non-equilibrium systems. Kinetics of simple and complex reactions. Theories of rate processes and molecular reaction dynamics. Statistical thermodynamics and its relevance to kinetics and spectroscopy.

**5303. QUANTUM CHEMISTRY (3-0).** Molecular quantum mechanics. Fundamental principles of quantum mechanics, with a special emphasis on molecular electronic structure theory. Topics covered include molecular mechanics, semi-empirical and ab initio molecular orbital theory, density functional theory, calculation of thermodynamic properties and molecular dynamics. Prerequisite: CHEM 3322 or equivalent.

**5308. DETERMINATION OF MOLECULAR STRUCTURE BY PHYSICAL METHODS (3-0).** The use of modern instrumental techniques to determine structure: infrared, ultraviolet, and magnetic resonance spectroscopy, mass spectrometry, optical rotatory dispersion. Emphasis on interpretation of spectra. Prerequisite: CHEM 2322 or equivalent.

**5309. ORGANIC CHEMISTRY I (3-0).** Bonding, structure, stereochemistry, substituent effects, isotope effects, solvent effects, kinetics, and linear free-energy relationships in determining reaction mechanisms. Acids and bases, orbital symmetry, pericyclic reactions,

photochemistry, and nucleophilic substitution reactions. Prerequisites: CHEM 2322 and 3322 or equivalent.

**5310. ORGANIC CHEMISTRY II (3-0).** A survey of organic reaction mechanisms including addition and elimination reactions, nucleophilic carbon species, carbonyl reactions, electrophilic substitution reactions, rearrangement reactions, electron deficient species, and free radical reactions. Prerequisite: CHEM 5309 or permission.

**5311. ANALYTICAL CHEMISTRY (3-0).** Survey of sampling theory, practice, and data processing; optical methods of analysis; electroanalytical methodology; miscellaneous analyses including flow systems, x-ray and thermal methods, and surface-sensitive techniques; chromatographic methods. Prerequisite: CHEM 4461 or equivalent.

**5312. ADVANCED ORGANIC SYNTHESIS (3-0).** Synthetically important reactions, strategy in organic synthesis using retrosynthetic analysis and mechanistic understanding of reactions, synthons, asymmetric synthesis. Prerequisite: CHEM 5310 or permission of instructor.

**5315. INORGANIC CHEMISTRY (3-0).** Structures, bonding, and properties of main group and transition element compounds including; symmetry, coordination chemistry, reaction mechanisms, organometallic chemistry, and modern characterization techniques. Prerequisite: CHEM 4318 or permission of instructor.

**5318. PRINCIPLES OF BIOCHEMISTRY (3-0).** Protein and nucleic acids structure, enzyme kinetics, and metabolism related to the human body. The course is intended for students who require biochemistry to support research efforts, or need to satisfy a deficiency before proceeding in the biochemistry graduate program. Prerequisite: CHEM 2322 or equivalent. A knowledge of physical chemistry is helpful.

**5319. GENERAL BIOCHEMISTRY I (3-0).** Amino acids, carbohydrates, nucleic acids, enzymes. Obtaining of energy and cellular material from glucose including glycolysis, the TCA cycle, electron transport and oxidative phosphorylation and the pentose phosphate pathway. Prerequisite: CHEM 2322 or equivalent. A knowledge of physical chemistry is helpful. Either CHEM 5318 or 5319, but not both, may be counted for credit toward degree requirements.

**5320. GENERAL BIOCHEMISTRY II (3-0).** Modes of breakdown and synthesis of fats, oxidative degradation of amino acids and proteins and biosynthesis of carbohydrate, nucleic acids, and protein. Chemical significance of the genetic code. Prerequisite: one semester of approved biochemistry (CHEM 5319 or equivalent). Either CHEM 5318 or 5320, but not both, may be counted for credit toward degree requirements.

**5321. METABOLISM AND REGULATION (3-0).** Biosynthesis of amino acids, purines, pyrimidines, and complex lipids, including terpenes and steroids, with emphasis on regulation of these pathways. Aspects of more complex metabolic regulation by hormones, second messengers and receptor-mediated endocytosis with emphasis on chemical and structural modifications of proteins involved. Prerequisite: CHEM 5320.

**5325. ENZYMOLOGY (3-0).** A study of enzymes including structures, reaction mechanisms, regulation, and kinetics. Prerequisite: CHEM 5320.

**5327. BIOCHEMICAL GENETICS (3-0).** Aspects of the biochemistry of gene expression in prokaryotic and eukaryotic organisms, its regulation and control, together with genetic manipulations, and the methodology of recombinant DNA technology. Prerequisite: CHEM 5320.

**5333. THERMODYNAMICS OF MATERIALS (3-0).** Applications of thermodynamics to the study of materials, thermodynamic properties of liquid and solid solutions and their relationship to surface and crystalline defects. Also offered as MSE 5320. Prerequisite: permission of instructor.

**5340. ENVIRONMENTAL CHEMISTRY (3-0).** Descriptive chemistry of air, water, and soil systems including pollutants; chemical and physical processes in the environment and their modeling; analytical, disposal, and recycling techniques. Prerequisite: permission of instructor.

**5350. ADVANCED POLYMER CHEMISTRY (3-0).** Polymer synthesis and reactions including condensation, free-radical, ionic, and coordination polymerizations; principles of polymerization including thermodynamics and kinetic considerations; physical characterizations including determinations of absolute molecular weights, relative molecular weights, morphology, glass transitions, and polymer crystallinity; relationships between macromolecular structure, properties, and uses of polymeric materials. Also offered as MSE 5346. Prerequisites: CHEM 2321 and 2322 or permission of instructor.

**5461. ANALYTICAL INSTRUMENTATION (2-8).** Theory of instrumentation and chemical signal source. Practical experiments utilizing atomic and molecular absorption and emission spectroscopy, chromatographic analysis, and electrochemical techniques. Prerequisite: CHEM 3322 or equivalent.

**5191-5691. READINGS IN CHEMISTRY.** Conference course which may be repeated for credit, with credit granted according to work performed. Graded P/F/R only. Prerequisite: permission of instructor.

**5192-5692. RESEARCH IN CHEMISTRY.** Conference course with laboratory with credit granted according to work performed. May be repeated for credit. Prerequisite: permission of instructor. Graded P/F/R.

**5398, 5698, 5998. THESIS.** 5398 graded R/F only; 5698 and 5998 graded P/F/R. Prerequisite: permission of instructor.

**6100. TOPICS IN GRADUATE RESEARCH (1-0).** Lectures by departmental and university faculty on current chemical research at U. T. Arlington. All graduate students are required to take this course once. May not be counted toward degree requirements. Graded P/F only.

**6101. TOPICS IN THE MODERN CHEMICAL LITERATURE (1-0).** This course will survey modern aspects of chemical research by requiring all students to read and critically discuss papers from the recent chemical literature. Areas to be covered will be selected by the instructor to cover a breadth of areas beyond the normal focus of typical dissertation research. May not be counted toward degree requirements. Graded P/F only.

**6102. ISSUES IN MODERN CHEMICAL RESEARCH (1-0).** Topics to be discussed include the use of the library, maintenance of a research notebook, ethics in research, aspects of technical writing and presentations, and how research is funded. May not be counted toward degree requirements. Graded P/F only.

**6201. UNIT OPERATIONS (2-0).** Survey of measurement and control techniques, and the fundamentals of physical and chemical industrial processes. Prerequisite: CHEM 3322 or equivalent or permission of instructor.

**6202. PRINCIPLES OF INDUSTRIAL CHEMISTRY (2-0).** Survey of industrial inorganic and organic chemical processes. Prerequisite: permission of instructor.

**6203. REGULATORY ASPECTS OF THE CHEMICAL INDUSTRY (2-0).** Survey of chemical toxicology, regulatory aspects involved in the chemical industry, industrial safety, patents and patent law.

**6104, 6304, 6904. CHEMISTRY INTERNSHIP (12-0).** Each student is required to spend three months in a nonacademic chemical laboratory; credit may be given for a student's previous industrial research experience. Graded P/F/R only. Prerequisite: permission of Graduate Advisor.

**6399, 6699, 6999. DISSERTATION.** 6399 and 6699 graded R/F only; 6999 graded P/F/R. Prerequisite: admission to candidacy for the degree of Ph.D. in Applied Chemistry.

**DISSERTATION—**See also Mathematical Sciences.

## Objectives

The Master of Science in geology provides a basic geologic background for students interested in a professional career in geology. With the thesis as a focus, the program integrates coursework and research to give the student not only a broad foundation but also a specific area of competence through participation in the research experience. Special coursework and research in geology, which lead to specialization in the areas of environmental geology or natural resource development, are available in addition to the more traditional areas of specialization.

The Ph.D. program in Mathematical Sciences is available to students interested in a more quantitative approach to earth science. Emphases in statistics or numerical and computational methods are especially useful when combined with coursework in the earth and environmental sciences. For more details on the Ph.D. in Mathematical Sciences, see the section on Interdepartmental and Intercampus Programs.

The M.S. and Ph.D. programs in Environmental Science and Engineering are designed for students interested in applying environmental geoscience in a multidisciplinary setting involving engineering, biology, chemistry and public policy. For more details on these programs, see the Interdepartmental and Intercampus Programs section of this catalog.

The M.A. degree in science teaching is for K-12 teachers who want to increase their teaching skills and understanding of science in general and earth science in particular.

Spatial Information Systems Certificate includes instruction in the technology of acquiring, managing, analyzing, and displaying information in a spatial context. This technology is a critical component of decision-making in a wide variety of enterprises and includes Geographic Information Systems (GIS) software, the Global Positioning System (GPS), and remotely sensed data from aircraft and satellites.

The Petroleum Geoscience Certificate provides instruction in the geological principles and techniques used in the petroleum industry to explore and produce oil and gas. It is useful for professionals wishing to upgrade their knowledge and skills, and those interested in employment in the petroleum industry. The graduate courses may also be used toward a M.S. degree.

## Admission

Students entering the graduate program in geology must meet the general Graduate School admission requirements. Those in the certificate programs will be admitted as Special Students and do not have to meet all the admissions requirements for the degree programs.

Applicants with degrees in geology are encouraged to have had the following courses or their equivalents as a part of a bachelor's program: mineralogy (2445), petrology-petrography (2446), paleontology (3441), computer literacy (1391), stratigraphy (3442), structural geology (3443), field geology (3387, 3388), one year each of physics, chemistry, biology and math through calculus II.

A program of leveling coursework for students with undergraduate deficiencies will be designed by the graduate studies committee depending on the student's professional interests.

Students in the Environmental Science and Engineering or Mathematical Geoscience degree programs who want to concentrate in geoscience should also have a baccalaureate degree in Geology with extra coursework in science, math, or engineering.

## Department of Geology

[www.uta.edu/geology](http://www.uta.edu/geology)  
[geology@uta.edu](mailto:geology@uta.edu)

### Areas of Study and Degrees

#### Geology

M.S.

#### Mathematical Geoscience

Ph.D. (See Interdepartmental and Intercampus Programs.)

#### Environmental Science and Engineering

M.S., Ph.D. (See Interdepartmental and Intercampus Programs.)

#### Earth Science Teaching

M.A. (See Interdepartmental and Intercampus Programs.)

#### Spatial Information Systems

Certificate

#### Petroleum Geoscience

Certificate

### Master's Degree Plans

(Thesis and Non-Thesis Options)

### Chair

John S. Wickham

107 Geoscience, 817-272-2987

### Graduate Advisor, Geology

William L. Balsam

### Graduate Advisor, Mathematical Geoscience

Merlynd K. Nestell

### Graduate Advisor, Environmental Science and Engineering

Karen Johannesson

### Graduate Faculty

#### Professors

Balsam, Crick, Holbrook,

M. Nestell, Scotese, Wickham

#### Associate Professor

K. Johannesson

#### Adjunct Faculty

Bhattacharya, Damuth, Eisenstadt,

Ellwood, Leybourne, Medley, G. Nestell,

Oliver, Shanmugam, Standlee

#### Professors Emeritus

Burkart, McNulty, Smith

Those admitted into the Spatial Information Certificate program should be computer literate, with a B.S. or B.A. degree.

Students in the Petroleum Geoscience Certificate should have a baccalaureate degree in geoscience, or a degree in science, math or engineering with some experience in the petroleum industry.

### Masters Program Admissions Criteria

For unconditional admission, students must demonstrate that they will likely be successful in the graduate program. The department admissions committee uses the following guidelines to make that judgment:

1. A B.S. degree in an Earth Science discipline with the following courses or their equivalent: Mineralogy, Petrology, Structure, Stratigraphy, Field Geology and Geophysics or Paleontology. In addition, students need a year of Chemistry, Biology, Physics and Calculus.
2. A minimum undergraduate GPA of 3.0 on a 4.0 scale, as calculated by the Graduate School.
3. GRE scores are combined with the other measures of achievement to determine admission. Successful students in the past have scored above the 60 percentile on the verbal, quantitative and analytical writing portions. International students have been successful with somewhat lower scores on the verbal and analytical writing portions.
4. Favorable letters of recommendation from the former university instructors.

These are only guidelines, and students who do not meet the guidelines in one area may be admitted unconditionally if they are strong in other areas.

Students that are unconditionally admitted will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UTA in the fall semester, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 9 hours of coursework in both long semesters to retain their fellowships.

If an applicant does not meet the standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in their first 12 hours of graduate coursework at UTA.

A candidate may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above. However, students who are nearly qualified for unconditional admission may be admitted on probationary status in which they will be required to maintain a minimum GPA of 3.0 in their first 12 hours of formal courses in the program.

A deferred application decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

Finally, international students must have a minimum score of 550 on the TOEFL exam. To have a graduate teaching assistantship, international students must also have a minimum score of 40 on the TSE.

### Degree Requirements

In the first year, a degree candidate must file a plan approved by the graduate studies committee, which includes coursework for the

program including undergraduate course deficiencies if any. The graduate studies committee may allow graduate course credit for undergraduate courses with written approval. Enrollment in Technical Sessions, GEOL 5199, is required each semester a student is enrolled in lecture classes.

For the M.S. thesis option, 24 semester hours of approved graduate level courses are required in addition to the thesis. A thesis proposal, written thesis and thesis defense are required. No more than 3 hours of research courses and one hour of 5199 can be applied to the 24 semester hours.

For the M.S. non-thesis option, a minimum of 36 hours of approved graduate courses are required. A minimum of 3 and a maximum of 6 hours are to be taken in GEOL 5381, Research in Geology. No more than 2 hours of 5199 can be applied to the 36 required hours.

The degree requirements for the Environmental Science and Engineering, the Mathematical Geosciences, and Master of Arts in teaching programs are described in the Interdepartmental and Intercampus Programs section of this catalog.

The two certificate programs require 15 hours of graduate credit each with a grade point average of 3.0. The Spatial Information Systems Certificate requires a project as part of the 15 credit hours.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

### Geology (GEOL)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5301. ENVIRONMENTAL GEOCHEMISTRY (3-0).** Fundamentals of low-temperature aqueous geochemistry, and anthropogenic impacts on natural water systems. Topics include equilibrium thermodynamics, kinetics, aqueous complexation, and oxidation/reduction processes that affect metals and organic matter in natural waters.

**5302. GLOBAL TECTONICS (3-0).** Plate tectonic theory and evidence, review of plate tectonic history since the late Precambrian. Prerequisite: GEOL 3442, GEOL 3443.

**5304. GEOMETRY AND MECHANICS OF GEOLOGICAL STRUCTURES (2-3).** Geometries of structures associated with extensional, shortening, strike-slip, diapiric, and reactivated tectonic environments. Principles of mechanics applied to the formation of these structures. Prerequisites: GEOL 3443; MATH 2325; PHYS 1444.

**5306. ENVIRONMENTAL GEOLOGY (3-0).** Hydrological systems, water quality, and behavior of pollutants; atmospheric systems, air

quality, and effects of pollutants; occurrence, prediction, and amelioration of natural environmental hazards including floods, earthquakes, volcanism, and landslides.

**5312. SANDSTONE PETROLOGY (3-0).** Petrographic examination of terrigenous clastics, including textural, compositional, and diagenetic aspects. Focus on paleogeographic, tectonic, and environmental interpretation. Prerequisites: GEOL 3442.

**5313. CARBONATE PETROLOGY (2-3).** Nature and composition of carbonate sediments and rocks in terms of their genesis, depositional environments, and processes involved in transport, deposition, diagenesis, and lithification. Prerequisites: GEOL 4443 or equivalent and 4345 or concurrent enrollment.

**5320. UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS (2-1).** A practical introduction to GIS and methods of creating, maintaining and displaying spatial data using the ArcGIS software. Prerequisite: consent of instructor.

**5321. ANALYSIS OF SPATIAL DATA (2-1).** Analyzing spatial data using ArcGIS, Spatial Analyst, and 3D Analyst, topological surface analysis and modeling; 3D visualization and viewscales; spatial statistics and data quality management. Prerequisites: GEOL 4330, GEOL 5320, or permission of the instructor.

**5322. GLOBAL POSITIONING SYSTEMS (2-1).** Review of the NAVSTAR Global Positioning System and its segments: space, operational control, and GPS receivers. Mechanics of the satellite constellation; GPS signal structure; data and coordinate systems; precision and accuracy; error factors; absolute (point) versus relative (differential) positioning. Various positioning techniques using several types of GPS receivers; field data collection and input into GIS programs for data analysis and presentation. Prerequisite: GEOL 4330, GEOL 5320, or permission of the instructor.

**5323. REMOTE SENSING FUNDAMENTALS (2-1).** The electromagnetic spectrum and the interaction of EM waves with matter; various types of sensing devices; spectral and spatial resolution parameters; airborne and satellite sensor platforms; aerial photographs and false-color images. The sequence of data acquisition, computer processing and interpretation; sources of data; the integration of remote sensing data with other data types in GIS. Prerequisite: GEOL 4330, GEOL 5320, or permission of the instructor.

**5324. GEOGRAPHIC DATA ANALYSIS PROJECT.** Acquisition, processing and analysis of a set of spatial data selected by the student with the approval of an advisor. A written report of the results is required. Prerequisite: GEOL 5320, 5321, 5322, 5323.

**5344. DEPOSITIONAL ENVIRONMENTS: TERRIGENOUS CLASTICS (3-0).** Depositional processes, physiographic and environmental components, and facies characteristics and relationships of alluvial, eolian, deltaic, clastic shoreline, shallow siliciclastic sea and deep sea clastic depositional systems. Emphasis on interpretation of ancient analogs. Prerequisite: GEOL 4443 or equivalent.

**5345. PETROLEUM GEOLOGY (2-3).** Origin, generation and migration of petroleum; reservoirs, seals and traps; the subsurface environment; properties of petroleum; exploration and production methods; use of seismic lines and well logs; types of petroleum basins; reserves and resources.

**5348. MARINE GEOLOGY (3-0).** Geologic processes of the oceans. Sedimentation in the oceans including biologic processes that relate to sediment production, chemistry of seawater, geochemical cycles in the oceans. Origin of seafloor topography. Seafloor spreading.

**5365. TOPICS IN GEOLOGY (2-3).** Topics offered depend on student and faculty interest. Such topics might include identification

of fossil fragments in thin section; magmatic processes; plate tectonics and sedimentary basin evolution; stratigraphic paleontology; sedimentary or volcanogenic ore deposition; geostatistics; geophysical archeology; and various advanced subjects in sedimentology, stratigraphy, paleontology, geophysics, geochemistry, volcanology and petrology. May be repeated for credit when topic changes.

**5370. SEDIMENTARY SYSTEMS (3-0).** Carbonate and clastic depositional systems, recognition of facies, systems tracts, diagenetic overprint, shelf to basin profiling, and sequence stratigraphic analysis.

**5371. PETROLEUM GEOCHEMISTRY AND BASIN MODELING (3-0).** Basic concepts of petroleum geochemistry, interpretation of geochemical data, maturation of kerogen. Basin evolution processes controlling petroleum generation and accumulation, subsidence histories, porosity evolution overpressure generation, thermal histories, hydrocarbon expulsion and migration.

**5372. STRUCTURAL GEOMETRY AND TECTONICS OF PETROLEUM FIELDS AND INTRODUCTION TO WELL LOG INTERPRETATION (3-0).** Techniques of structural modeling and restoration to the reliability of structural interpretation; structural styles of thin skinned, basement involved, strike-slip and reactivated systems. Introduction to the various types of well logs, and the quantitative and qualitative information obtained.

**5373. RESERVOIR CHARACTERIZATION (3-0).** Reservoir characterization, field development, risk assessment and economic evaluation of prospects.

**5374. SEISMIC INTERPRETATION (3-0).** Introduction to the methods of acquisition and processing as they relate to the interpretation of seismic records. Structural and stratigraphic interpretation methods and pitfalls using two and three dimensional seismic data.

**5407. ENVIRONMENTAL GEOPHYSICS (3-3).** Geophysical techniques applied to solving environmental problems. The course will cover fundamentals in geophysics and include a practical field problem. Prerequisite: a physics course and a course in geochemistry or geophysics or permission of the instructor.

**5409. APPLIED GEOPHYSICS (3-3).** Geophysical Techniques used to determine the presence and extent of deposits of minerals and the subsurface structure of selected localities from field methods. Prerequisites: GEOL 3443 and a course in physics, or permission of the instructor.

**5483. GEOARCHAEOLOGY (3-1).** Geological, geochemical and geophysical techniques employed in the study of archaeological sites and materials. Also listed as ANTH 5483.

The following research courses will be graded either P/F/R or A/B/C/D/F/R as designated by the instructor at the beginning of the semester or session.

**5181, 5281, 5381. RESEARCH IN GEOLOGY.** Independent study in various areas of research including paleontology, stratigraphy, tectonics, structural geology, sedimentology, geochemistry, petrology, geophysics, and volcanology. May be repeated for credit. Graded R.

**5190. GEOSCIENCE INTERNSHIP.** Work in geoscience for a commercial concern at least 20 hrs/wk for 3 months. Requirements include writing a resume, learning how to interview and function on the job, and a report describing the work. Prerequisite: graduate admission to geology.

**5199. TECHNICAL SESSIONS (1-0).** Forum for presentation of results of graduate students and faculty research. Required each semester of all graduate students.

**5398, 5698. THESIS.** 5398 graded R/F only; 5698 graded P/F/R.

# Department of Mathematics

[www.uta.edu/math](http://www.uta.edu/math)

## Areas of Study and Degrees

**Mathematics**

M.S., M.A.

**Mathematical Sciences**

Ph.D.

(See Interdepartmental and Intercampus Programs.)

## Master's Degree Plans

Thesis and Thesis Substitute

### Chair

Danny Dyer

469 Pickard Hall, 817-272-3246

### Graduate Advisor

Tie Luo

429 Pickard Hall, 817-272-3597

### Graduate Faculty

**Professors**

Dragan, Dyer,

Han, Ladde, Liao,

C. Liu, Luo, Nestell

### Associate Professors

Cordero, Hawkins, Heath,

Korzeniowski, Kribs-Zaleta,

D. Liu, Shipman, Su, Vancliff

### Assistant Professors

Epperson, Jorgensen,

Kojouharov, Shan

### Professors Emeritus

Corduneanu, Greenspan, Moore

## Objective

The objectives of the Mathematics Department's program at the master's level are (1) to develop the student's ability to do independent research and prepare for more advanced study in mathematics, and (2) to give advanced training to professional mathematicians, mathematics teachers, and those employed in engineering, scientific, and business areas.

Graduate work will be offered in algebra, complex and real variables, differential equations, functional analysis, geometry, mathematical education, numerical analysis, operations research, probability, statistics and topology.

## Admission Requirements

### Master of Science Program

For unconditional admission, a student must meet the following requirements:

1. A B.A. or B.S. degree in mathematics or closely related field.
2. An overall GPA in the final 60 hours of coursework of a 3.0 or better, as calculated by the Graduate School, on a 4.0 scale.
3. Minimum of 350 on the verbal and 650 on the quantitative portions of the Graduate Record Examination (GRE).
4. For applicants whose native language is not English, a minimum score of 550 on the Test of English as a Foreign Language (or an equivalent score on a computer-based test) or a score of 40 on the Test of Spoken English.
5. Three favorable letters of recommendation from people familiar with the applicant's academic work.

Applicant's who do not satisfy requirements 2 or 3 above may be considered for unconditional admission if further review of their undergraduate transcript, recommendation letters, correspondence or direct interactions with mathematics faculty, and statement of professional or research interests indicates that they are qualified to enter the Master's Program without deficiency.

If an applicant does not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in the first 12 hours of graduate coursework at UTA.

Students who are unconditionally admitted will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UTA in the fall semester, must have a GPA of 3.0 in the last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain the fellowship.

Applicants may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above.

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline, but who otherwise appears to meet admission requirements, may be granted provisional admission.

### Master of Arts Program

For unconditional admission a student must meet items 1-3 or 3-5.

1. A B.S. or B.A. degree with at least 18 hours of mathematics



coursework with a GPA of at least 3.0, as calculated by the Graduate School on a 4.0 scale.

2. Minimum of 400 on the verbal and 600 on the quantitative portions of the Graduate Record Examination (GRE).
3. Three favorable letters of recommendation from people familiar with the applicant's academic work and/or professional work.
4. A B.S. or B.A. degree.
5. Certified to teach mathematics at the Secondary Level (Secondary Mathematics Certification).

Applicants who do not satisfy requirements 1 or 2 above may be considered for unconditional admission if further review of their undergraduate transcript, recommendation letters, correspondence or direct interactions with mathematics faculty, and statement of professional or research interests indicates that they are qualified to enter the Master's Program without deficiency.

If an applicant does not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in the first 12 hours of graduate coursework at UTA.

Applicants may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above.

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline, but who otherwise appears to meet admission requirements, may be granted provisional admission.

## Doctoral Program

For unconditional admission a student must meet the following requirements:

1. A master's degree or at least 30 hours of graduate coursework in mathematics or closely related fields.
2. A minimum GPA of 3.0, as calculated by the Graduate School, on a 4.0 scale in graduate coursework.
3. Minimum of 350 on the verbal and 700 on the quantitative portions of the Graduate Record Examination (GRE).
4. For applicants whose native language is not English, a minimum score of 550 on the Test of English as a Foreign Language (or an equivalent score on a computer-based test) or a score of 40 on the Test of Spoken English.
5. Three favorable letters of recommendation from people familiar with the applicant's academic work and/or professional work.

Applicants who do not satisfy requirements 2 or 3 above may be considered for unconditional admission if further review of their undergraduate transcript, recommendation letters, correspondence or direct interactions with mathematics faculty, and statement of professional or research interests indicates that they are qualified to enter the Doctoral Program without deficiency.

If an applicant does not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in the first 12 hours of graduate coursework at UTA.

Students who are unconditionally admitted will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UTA in the fall semester, must have a GPA of 3.0 in the last 60 undergraduate credit hours plus any graduate credit hours as

calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain the fellowship.

Applicants may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above.

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline, but who otherwise appears to meet admission requirements, may be granted provisional admission.

## Master of Science Degree Requirements

The Department of Mathematics offers master's degree programs in mathematics with additional emphasis in applied mathematics, computer science, mathematics education, pure mathematics, and statistics. All students are to use either the thesis or thesis-substitute plan.

All master's students must complete one of the following:

### 1. General Mathematics core requirements:

MATH 5300: Computer Programming and Applications  
MATH 5307: Mathematical Analysis I  
MATH 5308: Mathematical Analysis II  
MATH 5333: Linear Algebra and Matrices

### One of the following tracks:

Applied Mathematics: MATH 5350, 5351, and either 5320 or 5321

Computer Science: MATH (5348 and 5349) or (5338 and 5339), and either 5371 or 5373, and six approved hours in computer science engineering

Mathematical Education: Nine hours from MATH 5336, 5337, 5340-5348, 5352

Pure Mathematics: MATH 5317, and two from MATH 5304, 5331, 5334

### 2. General Statistics core requirements:

MATH 5300: Computer Programming and Applications  
MATH 5307: Mathematical Analysis I  
MATH 5333: Linear Algebra and Matrices

One of the following three courses:

MATH 5356: Applied Multivariate Statistical Analysis

MATH 5357: Sample Surveys

MATH 5392: Regression Analysis

MATH 5305: Statistical Methods

MATH 5312: Mathematical Statistics I

MATH 5313: Mathematical Statistics II

### *In addition:*

1. Those students enrolled in the thesis substitute plan must take MATH 5395, and all except those in the computer science track must take at least nine other hours of electives.\*

2. Those students enrolled in the thesis plan must take at least six hours of MATH 5398-5698, and all except those in the computer science track must take at least three other hours of electives.\*

\*Electives may not be chosen from MATH 5336, 5337, 5340-5348, 5352

Students in every degree plan must pass a final exam.

## Master of Arts in Mathematics

The master of arts program in the Department of Mathematics is designed for teachers who are interested in strengthening their understanding of mathematics and enriching their mathematics teaching. The program prepares teachers in subjects such as geometry, algebra, precalculus, analysis/calculus, probability, statistics, discrete mathematics, number theory, and the use of mathematics-specific technologies. The program embraces a philosophy of teaching and learning mathematics that is consistent with the landmark *Standards* documents produced by the National Council of Teachers of Mathematics.

### Degree Requirements

The requirements for the master of arts degree are 30 hours of graduate courses from the Department of Mathematics and a 3 hour project.

All students must complete the following:

#### 1. Required Courses (6) and Project:

- MATH 5340: Concepts and Techniques in Discrete Mathematics
- MATH 5341: Concepts and Techniques in Geometry
- MATH 5342: Concepts and Techniques in Algebra
- MATH 5343: Concepts and Techniques in Probability and Statistics
- MATH 5344: Mathematics-Specific Technologies
- MATH 5345: Concepts and Techniques in Analysis
- MATH 5395: Project - Individual, Director-Approved Research

#### 2. Elective Courses (4):

- MATH 5300: Computer Programming and Applications
- MATH 5305: Statistical Methods
- MATH 5307: Mathematical Analysis I
- MATH 5308: Mathematical Analysis II
- MATH 5333: Linear Algebra and Matrices
- MATH 5336: Concepts and Techniques in Number Theory
- MATH 5337: Concepts and Techniques in Calculus
- MATH 5346: Concepts and Techniques in Problem Solving
- MATH 5347: Concepts and Techniques in Modeling and Applications
- MATH 5352: Concepts and Techniques in Precalculus
- MATH 5380: Seminar - Study of Current Mathematics Topics
- MATH 5392: Selected Topics in Mathematics

## Ph.D. Program in Mathematical Sciences

A unique and dynamic program leading to the Doctor of Philosophy degree in the mathematical sciences will aim at both real and demonstrated competency on the part of the student over material from various branches of mathematical sciences. The Doctor of Philosophy degree in Mathematical Sciences provides a program of study that may be tailored to meet the needs of those interested in applied or academic careers. This unique program allows students to pursue topics ranging from traditional mathematics studies to applied and theoretical problems in biology, chemistry, computer science, engineering, geology, information systems, physics and psychology. The nature of the dissertation will range from research in mathematics to the discovery and testing of mathematical models for analyzing given problems in sciences and in locating and

developing mathematical and computational techniques for deducing the properties of these models as to solve these problems effectively and efficiently. Such dissertations will be concerned with research problems from such areas as pure mathematics, applied mathematics, probability, statistics, computer science, biology, biometry, chemistry, engineering, geology, information systems, physics, management sciences, and operational sciences.

### Degree Requirements\*

The Department of Mathematics offers doctoral degree programs in Mathematics (algebra, applied mathematics, game theory, geometry, numerical analysis) and in Statistics.

All doctoral students must complete one of the following:

#### 1. General MATHEMATICS core requirements:

- MATH 5308: Mathematical Analysis II
- MATH 5317: Real Analysis
- MATH 5320: Ordinary Differential Equations
- MATH 5322: Complex Variables
- MATH 5327: Functional Analysis I
- MATH 5331: Abstract Algebra I

One of the following four courses:

- MATH 5319: Probability Theory
- MATH 5321: Partial Differential Equations
- MATH 5334: Differential Geometry
- MATH 5338: Numerical Analysis I

In addition to the mathematics core requirements students are also required to take three area related courses.

#### 2. General STATISTICS core requirements:

- MATH 5305: Statistical Methods
- MATH 5307: Mathematical Analysis I
- MATH 5308: Mathematical Analysis II
- MATH 5312: Mathematical Statistics I
- MATH 5313: Mathematical Statistics II
- MATH 5317: Real Analysis
- MATH 5319: Probability Theory
- MATH 5322: Complex Variables
- MATH 5327: Functional Analysis I
- MATH 5333: Linear Algebra

In addition to the statistics core requirements, students are also required to take two statistics courses from MATH 5311, 5314, 5353, 5354, 5356, 5357, 5358, 5359, 6353, 6356, 6357.

Students in every degree plan must pass a comprehensive exam.

\*Effective for students entering the graduate program starting Fall 2001. Returning students may choose the old core requirements.

For additional information on the mathematical sciences program, see the program entry in the Interdepartmental and Intercampus Programs section of this catalog.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Mathematics (MATH)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5191. SEMINAR FOR TEACHING ASSISTANTS (0-1).** This course is mandatory for all mathematics graduate teaching assistants. Students will be instructed on classroom procedures and strategies and will be required to deliver lectures under the supervision of math faculty. The purpose is to develop students to be effective lecturers. Admittance to this course is restricted to Math TAs.

**5300. COMPUTER PROGRAMMING AND APPLICATIONS (3-0).** Introduction to computing techniques utilizing an algorithmic language such as Fortran. Applications from various areas of numerical analysis. Prerequisite: consent of the instructor.

**5301. MATHEMATICAL COMPUTER RESOURCES (3-0).** Introduction to hardware and software available to the scientific graduate student whose studies involve numerical computations. Utilization of the various mathematic/statistical libraries is emphasized rather than programming of mathematic/statistical routines. Prerequisite: MATH 5300 or its equivalent.

**5302. FUNDAMENTALS OF MATHEMATICAL SCIENCES I (3-0).** Matrices and operators, linear spaces, multivariable calculus, dynamical systems, applications. Prerequisites: MATH 3318 and 3330 or consent of instructor.

**5303. FUNDAMENTALS OF MATHEMATICAL SCIENCES II (3-0).** Wave propagation, potential theory, complex variables, transform techniques, perturbation techniques, diffusion, applications. Prerequisite: MATH 5302 or consent of instructor.

**5304. GENERAL TOPOLOGY (3-0).** Introduction to fundamentals of general topology. Topics include product spaces, the Tychonoff theorem, Tietzes Extension theorem, and metrization theorems. Prerequisite: MATH 4304 or 4335.

**5305. STATISTICAL METHODS (3-0).** Topics include descriptive statistics, numeracy, and report writing; basic principles of experimental design and analysis; regression analysis; data analysis using the SAS package. Prerequisite: consent of the instructor.

**5307. MATHEMATICAL ANALYSIS I (3-0).** Elements of topology, real and complex numbers, limits, continuity, and differentiation, functions of bounded variation, Riemann-Stieltjes integrals. Prerequisite: MATH 4335 or consent of Graduate Advisor.

**5308. MATHEMATICAL ANALYSIS II (3-0).** Analysis in  $\mathbb{R}^n$ , limits, continuity, Jacobian, extremum problems, multiple integrals, sequences and series of functions, Lebesgue integral. Prerequisite: MATH 5307 or consent of Graduate Advisor.

**5310. MATHEMATICAL GAME THEORY (3-0).** Two person null sum games. Bimatrix games and Nash equilibrium points. Noncooperative games, existence theorem. Cooperative games, core, Shapley value, the nucleolus. Cost allocation. Market games. Simple games and voting. Prerequisite: MATH 3330.

**5311. APPLIED PROBABILITY AND STOCHASTIC PROCESSES (3-0).** Topics include conditional expectations, law of large numbers and central limit theorem, stochastic processes, including Poisson, renewal, birth-death, and Brownian motion. Prerequisite: MATH 3313 or equivalent.

**5312. MATHEMATICAL STATISTICS I (3-0).** Basic probability theory, random variables, expectation, probability models, generating functions, transformations of random variables, limit theory. Prerequisite: MATH 5307 or concurrent registration or consent of instructor.

**5313. MATHEMATICAL STATISTICS II (3-0).** Theories of point estimation (minimum variance unbiased and maximum likelihood), interval estimation and hypothesis testing (Neyman-Pearson and likelihood ratio tests), regression analysis and Bayesian inference. Prerequisite: MATH 5312.

**5314. EXPERIMENTAL DESIGN (3-0).** This course covers the classical theory and methods of experimental design, including randomization, blocking, one-way and factorial treatment structures, confounding, statistical models, analysis of variance tables and multiple comparisons procedures. Prerequisite: MATH 5305 or equivalent.

**5315. GRAPH THEORY (3-0).** Algorithms for problems on graphs. Trees, spanning trees, connectedness, fundamental circuits. Eulerian graphs and Hamiltonian graphs. Graphs and vector spaces, matrices of a graph. Covering and coloring. Flows. Prerequisite: MATH 3314.

**5316. COMBINATORIAL OPTIMIZATION (3-0).** Shortest paths. Minimum weight spanning trees and matroids. Matchings and optimal assignment. Connectivity. Flows in networks, applications. Prerequisite: MATH 3314.

**5317. REAL ANALYSIS FOR THE MATHEMATICAL SCIENCES (3-0).** Lebesgue measure and integration on  $\mathbb{R}^n$ . Study of LP spaces. Abstract measure and integration. Prerequisite: MATH 5308.

**5318. FUNDAMENTALS OF STOCHASTIC ANALYSIS (3-0).** General properties of stochastic processes, processes with independent increments, martingales, limit theorems including invariance principle, Markov processes, stochastic integral, stochastic differential. Prerequisite: MATH 5308.

**5319. PROBABILITY THEORY (3-0).** Probability spaces, random variables, filtrations, conditional expectations, martingales, strong law of large numbers, ergodic theorem, central limit theorem, Brownian motion and its properties. Prerequisite: MATH 5308.

**5320. APPLIED DIFFERENTIAL EQUATIONS (3-0).** Fundamentals of the theory of systems of ordinary differential equations: existence, uniqueness, and continuous dependence of solutions on data; linear equations, stability theory and its applications, periodic and oscillatory solutions. Prerequisites: MATH 5307 and 5333.

**5321. APPLIED PARTIAL DIFFERENTIAL EQUATIONS (3-0).** General first order equations. Basic linear theory for elliptic, hyperbolic, and parabolic second order equations, including existence and uniqueness for initial and boundary value problems. Prerequisites: MATH 5307 and 5333.

**5322. COMPLEX VARIABLES I (3-0).** Fundamental theory of analytic functions, residues, conformal mapping and applications. Prerequisite: MATH 5307.

**5324. APPLIED COMPLEX VARIABLES (3-0).** Analytic functions of a complex variable; the line integral, residues, applications; conformal mappings; harmonic functions and applications to physical problems; elements of transform theory. Prerequisite: MATH 3335 or consent of the instructor.

**5325. ALGEBRAIC NUMBER THEORY (3-0).** Field extensions, number fields and number rings, ramification theory, class groups,

elliptic curves and their group structure, applications to Fermat's last theorem. Prerequisites: MATH 3321.

**5326. ALGEBRAIC TOPOLOGY (3-0).** Fundamental groups, covering space, singular homology, relative homology, Mayer-Vietoris sequence, Betti numbers, Euler characteristic. Prerequisites: MATH 3321, MATH 3335.

**5327. FUNCTIONAL ANALYSIS I (3-0).** Introduction to Hilbert and Banach spaces: Hahn-Banach, Banach-Steinhaus, and closed graph theorems. Riesz representation theorem and bounded linear operators in Hilbert space. Prerequisite: MATH 5308.

**5328. FUNCTIONAL ANALYSIS II (3-0).** The theory of distributions and Sobolev spaces, with applications to differential equations. Compact operators and Fredholm theory. Spectral theory for unbounded operators. Prerequisite: MATH 5327.

**5330. ALGEBRAIC GEOMETRY (3-0).** Theory of ideals in polynomial rings, Nullstellensatz, Hilbert's basis theorem, Groebner basis and computation in polynomial rings, affine and projective varieties, singular and smooth points on varieties. Prerequisites: MATH 3321.

**5331. ABSTRACT ALGEBRA I (3-0).** Zorn's Lemma, groups, including free groups and dihedral groups. Rings including factorization, localization, rings of polynomials, and formal power series. An introduction to modules. Prerequisite: MATH 3321.

**5332. ABSTRACT ALGEBRA II (3-0).** Modules, including free, projective, and injective. Exact sequences and tensor products of modules. Chain conditions, primary decomposition, Noetherian rings and modules. Prerequisite: MATH 5331.

**5333. LINEAR ALGEBRA AND MATRICES (3-0).** Linear spaces, linear transformations, vector norms, Gaussian elimination, Jordan form, eigenvalues, quadratic forms, and related topics. Prerequisite: MATH 3330 or consent of instructor.

**5334. DIFFERENTIAL GEOMETRY (3-0).** Introduction to the theory of curves and surfaces in three dimensional Euclidean space. Prerequisite: MATH 4334 or 4335.

**5335. APPLIED VECTOR AND TENSOR ANALYSIS (3-0).** Vector algebra, vector and tensor calculus; applications to differential geometry, engineering sciences, and dynamics including surface theory, geodiscs, minimal surfaces, elasticity, particle dynamics, special relativity, and general relativity. Prerequisite: MATH 5302.

**5336. CONCEPTS AND TECHNIQUES IN NUMBER THEORY (3-0).** Topics include mathematical induction, fundamental theorem or arithmetic, inequalities, special sequences and sums, divisibility properties, greatest common divisor, division and Euclidean algorithm, properties of congruence and Diophantine equations.

**5337. CONCEPTS AND TECHNIQUES IN CALCULUS (3-0).** Topics studied include limits, continuity, differentiation, integration, numerical approximations, applications and Taylor series.

**5338. NUMERICAL ANALYSIS I (3-0).** Solution of equations, interpolation and approximation, numerical differentiation and quadrature, and solution of ordinary differential equations. Prerequisite: MATH 3345.

**5339. NUMERICAL ANALYSIS II (3-0).** Rigorous treatment of numerical aspects of linear algebra and numerical solution of boundary value problems in ordinary differential equations; also, an introduction to numerical solution of partial differential equations. Prerequisite: MATH 3345.

**5340. CONCEPTS AND TECHNIQUES IN DISCRETE MATHEMATICS (3-0).** Topics include functions, mathematical induction, principles of counting, combinatorics, sequences and recurrence relations, and finite graph theory.

**5341. CONCEPTS AND TECHNIQUES IN GEOMETRY (3-0).** Selected materials from geometry.

**5342. CONCEPTS AND TECHNIQUES IN ALGEBRA (3-0).** Selected materials from algebra.

**5343. CONCEPTS AND TECHNIQUES IN PROBABILITY AND STATISTICS (3-0).** Consideration of (1) exploring data: descriptive statistics of situations involving one and two variables; (2) anticipating patterns: probability and simulation; (3) design of experiments and planning a study; (4) statistical inference: confirming models. Use of a graphing calculator and other appropriate technology.

**5344. MATHEMATICS-SPECIFIC TECHNOLOGIES (3-0).** Focus on use of current mathematics-specific technologies for enhancing mathematical understanding and mathematics teaching. May include use of Geometer's Sketchpad, Fathom, graphing calculators and computer algebra systems.

**5345. CONCEPTS AND TECHNIQUES IN ANALYSIS (3-0).** Selected materials from analysis including concepts and topics consistent with precalculus and elementary calculus.

**5346. CONCEPTS AND TECHNIQUES IN PROBLEM SOLVING (3-0).** Instruction in the application of various heuristics or general problem strategies.

**5347. CONCEPTS AND TECHNIQUES IN MATHEMATICAL MODELING WITH APPLICATIONS (3-0).** Topics studied include algebraic, graphical, geometrical and numerical techniques to model and solve applied problems.

**5348. ANALYSIS OF NUMERICAL METHODS I (3-0).** Rigorous treatment of topics in numerical analysis including roundoff error effects, solution of linear and nonlinear systems, interpolation, and numerical integration. Emphasis on analysis of methods as well as computation. Prerequisites: MATH 3335 and 3345.

**5349. ANALYSIS OF NUMERICAL METHODS II (3-0).** Continuation of MATH 5348. Topics include QR decomposition, eigenvalue approximation, singular value decomposition, least squares problems, numerical approximation of ODE's and PDE's, and iterative methods for large sparse systems. Emphasis on analysis of methods as well as computation. Prerequisite: MATH 5348.

**5350. APPLIED MATHEMATICS I (3-0).** Development of models arising in the natural sciences and in engineering. Emphasis will be on the mathematical techniques and theory needed to analyze such models; these include aspects of the theory of differential and integral equations, boundary value problems, theory of distributions and transforms. Prerequisites: MATH 5307 and 5333.

**5351. APPLIED MATHEMATICS II (3-0).** Continuation of MATH 5350; models arising in the physical sciences whose analysis includes such topics as the theory of operators in a Hilbert space, variational principles, branching theory, perturbation and stability analysis. Prerequisite: MATH 5350.

**5352. CONCEPTS AND TECHNIQUES IN PRECALCULUS (3-0).** Topics include functions (transcendental, inverse, parametric, polar, transformations), asymptotic behavior, conics, sequences, complex numbers.

**5353. APPLIED LINEAR MODELS (3-0).** The course covers, at an operational level, three topics: 1) the univariate linear model, including a self-contained review of the relevant distribution theory, basic inference methods, several parameterizations for experimental design and covariate-adjustment models and applications, and power calculation; 2) the multivariate linear model, including basic inference (e.g. the four forms of test criteria and simultaneous methods), applications to repeated measures experiments and power calculation; and 3) the univariate mixed

model, including a discussion of the likelihood function and its maximization, approximate likelihood inference, and applications to complex experimental designs, missing data, unbalanced data, time series observations, variance component estimation, random effects estimation, power calculation and a comparison of the mixed model's capabilities relative to those of the classical multivariate model. Knowledge of the SAS package is required. Prerequisite: MATH 5358 (Regression Analysis) or equivalent.

**5354. CATEGORICAL DATA ANALYSIS (3-0).** This course covers classical methods for analyzing categorical data from a variety of response/factor structures (univariate or multivariate responses, with or without multivariate factors), based on several different statistical rationales (weighted least squares, maximum likelihood and randomization-based). Included are logistic regression, multiple logit analysis, mean scores analysis, observer agreement analysis, association measures, methods for complex experimental designs with categorical responses and Poisson regression. The classical log-linear model for the association structure of multivariate responses is briefly reviewed. Randomization-based inference (e.g. Mantel-Haenzel) is discussed as well. The necessary distribution theory (multinomial, asymptotics of weighted least squares and maximum likelihood) are discussed at an operational level. Knowledge of the SAS package is required. Prerequisite: MATH 5358 (Regression Analysis).

**5355. STATISTICAL THEORY FOR RESEARCH WORKERS (3-0).** Designed for graduate students not majoring in mathematics. Topics include basic probability theory, distributions of random variables, point estimation, interval estimation, testing hypotheses, regression, and an introduction to analysis of variance. Graduate credit not given to math majors. Prerequisite: MATH 2325.

**5356. APPLIED MULTIVARIATE STATISTICAL ANALYSIS (3-0).** Statistical analysis for data collected in several variables, topics including sampling from multivariate normal distribution, Hotelling's  $T^2$ , multivariate analysis of variance, discriminant analysis, principal components, and factor analysis. Prerequisite: MATH 5312 or consent of instructor.

**5357. SAMPLE SURVEYS (3-0).** A comprehensive account of sampling theory and methods, illustrations to show methodology and practice, simple random sampling, stratified random sample, ratio estimates, regression estimates, systematic sampling, cluster sampling, and nonsampling errors. Prerequisite: MATH 5312 or consent of instructor.

**5358. REGRESSION ANALYSIS (3-0).** A comprehensive course including multiple linear regression, non-linear regression and logistic regression. Emphasis is on modeling, inference, diagnostics and application to real data sets. The course begins by developing a toolbox of methods via a sequence of guided homework assignments. It culminates with projects based on consulting-level data analysis problems involving stratification, covariate adjustment and messy data sets. Some knowledge of the SAS package is required. Prerequisites: MATH 5305, basic knowledge of matrices.

**5359. SURVIVAL ANALYSIS (3-0).** This course covers analysis of lifetime data, which has applications to actuarial science and health fields. Topics include the survivor function, hazard function, censoring, parametric regression models (e.g. the weibull), nonparametric regression models (e.g. the Cox proportional hazards model), categorical survival data methods, competing risks and methods for multivariate survival data. Knowledge of the SAS package is required. Prerequisites: MATH 5358 (Regression Analysis) and preferably MATH 5313. (Students without 5313 can still succeed if they have some basic calculus-based probability, such as MATH 3313).

**5361. APPLIED CALCULUS OF VARIATION (3-0).** Functionals, variation, extremization, Euler's equation, direct and indirect approximation methods; applications to mechanics and control theory. Prerequisite: MATH 5302.

**5362. MATHEMATICS OF LINEAR PROGRAMMING (3-0).** The simplex method and the revised simplex method. Linear algebra for polyhedra and polytopes. Duality theory. Sensitivity analysis. Applications to transportation problems, network flow problems, matrix-games and scheduling problems. Integer programming. Quadratic programming. Prerequisite: MATH 3330.

**5363. OSCILLATIONS AND WAVES (3-0).** Development of methods and results related to phenomena in nature that exhibit oscillatory motion; mathematical techniques include Fourier series, ordinary and partial differential equations, and the theory of almost periodic functions. Prerequisite: MATH 3318.

**5364. INTRODUCTION TO MATHEMATICAL CONTROL THEORY (3-0).** Systems in science, engineering, and economics and their mathematical description by means of functional equations (ordinary, partial, integral, delay-type). Basic properties of various classes of systems: observability, controllability, stability, and oscillating systems; optimal control problems and applications. Prerequisite: MATH 3318 or 4320.

**5365. BIOMATHEMATICS (3-0).** Mathematical techniques used in modeling such as perturbation theory, dimensional analysis, Fourier analysis, and differential equations. Applications to morphogenetics, population dynamics, compartmental systems, and chemical kinetics. Prerequisite: consent of instructor.

**5366. INTRODUCTION TO NEURAL AND COGNITIVE MODELING (3-0).** Principles of neural network modeling; application of these principles to the simulation of cognitive processes in both brains and machines; models of associative learning, pattern recognition, and classification. Prerequisite: consent of instructor.

**5371. NUMERICAL LINEAR ALGEBRA (3-0).** Methods and theory related to the numerical solution of linear algebraic systems and eigenvalue-eigenvector problems. Both direct and iterative techniques are developed and discussed for full and sparse systems. Convergence, convergence rates, and error analysis. Prerequisites: MATH 3330 and 3345.

**5372. NUMERICAL FUNCTIONAL ANALYSIS (3-0).** Numerical implementation of abstract operator methods, including Newton's method for linear and nonlinear algebraic, transcendental, differential, integral, and functional equations; some aspects of approximation theory. Prerequisite: MATH 5308.

**5373. NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS (3-0).** Theoretical analysis of methods for approximating solutions of initial value problems, boundary value problems, and problems with periodic solutions; existence, uniqueness, convergence, stability, and error analysis are stressed for both single equations and for systems. Prerequisite: MATH 5338 or consent of instructor.

**5374. NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS (3-0).** Theoretical analysis for numerical methods for approximating solutions of elliptic, parabolic, hyperbolic, mixed, and systems of partial differential equations problems; existence, uniqueness, convergence, stability, and error analysis are stressed. Prerequisite: MATH 5339 or consent of instructor.

**5380. SEMINAR (3-0).** Current topics in mathematics, may be repeated for credit twice. Prerequisite: consent of instructor.

**5391. SPECIAL TOPICS IN MATHEMATICS (3-0).** Topics in mathematics assigned individual students or small groups. Faculty

## MATHEMATICS

members closely supervise the students in their research and study. In areas where there are only three hours offered, the special topics may be used by students to continue their study in the same area. Graded P/F/R. Prerequisite: permission of instructor.

**5392. SELECTED TOPICS IN MATHEMATICS (3-0)/(3-1).** May vary from semester to semester depending upon need and interest of the students. May be repeated for credit. Prerequisite: permission of instructor.

**5395. SPECIAL PROJECT.** Graded P/F/R. Prerequisite: permission of Graduate Advisor.

**5398, 5698. THESIS.** 5398 graded R/F only; 5698 graded P/F/R. Prerequisite: permission of Graduate Advisor.

**6313. TOPICS IN PROBABILITY AND STATISTICS (3-0).** May be repeated for credit when the content changes.

**6353. GENERALIZED LINEAR MODELS (3-0).** This course covers modern methods for analyzing bernoulli, multinomial and count data. It begins with a development of generalized linear model theory, including the exponential family, link function and maximum likelihood. Second is a discussion of the case of models for independent observations. Next is a discussion of models for repeated measures, based on quasi-likelihood methods. These include models (such as markov chains) for categorical time series. Next is a treatment of models with random effects. Finally is a discussion of methods for handling missing data. Knowledge of the SAS package is required. Prerequisites: MATH 5358 (Regression Analysis) and preferably MATH 5313. (Students without 5313 can still succeed but must deal with the slightly higher mathematical level of this course).

**6356. TIME SERIES ANALYSIS (3-0).** This course covers classical methods of time series analysis, for both the time and frequency domains. For covariance stationary series, these include ARIMA modeling and spectral analysis. For nonstationary series, they include

methods for detrending and filtering. Also included is a treatment of multivariate series, as well as a discussion of the Kalman filter state-space model. Knowledge of the SAS package is required. Prerequisites: MATH 5358 (Regression Analysis) and MATH 5313.

**6357. NONPARAMETRIC STATISTICS (3-0).** This is a survey of classical nonparametric methods for inference in standard observational settings (one-sample, two-sample, k-samples and the univariate linear model), and includes a development of U-statistics, rank statistics and their asymptotic distribution theory. The mathematical level is fairly high. Prerequisite: MATH 5313.

**6391. SPECIAL TOPICS IN MATHEMATICS (3-0).** Faculty directed individual study and research. May be repeated for credit when the content changes. Graded P/F/R.

**DISSERTATION**—See Mathematical Sciences.

A limited number of undergraduate mathematics courses may be applicable to a graduate program in mathematics if approved by the Graduate Advisor. These must be chosen from the following list and shall not exceed six hours total credit.

**4303. INTRODUCTION OF TOPOLOGY**

**4313. APPLICATIONS OF MATHEMATICAL STATISTICS**

**4314. ADVANCED DISCRETE MATHEMATICS**

**4320. ADVANCED DIFFERENTIAL EQUATIONS**

**4321. INTRODUCTION TO ABSTRACT ALGEBRA II**

**4322. INTRODUCTION TO COMPLEX VARIABLES**

**4324. INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS**

**4334. ADVANCED MULTIVARIABLE CALCULUS**

**4335. ANALYSIS II**

**4345. NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS II**

## Objective

The objective of graduate work in physics is to prepare the student for continued professional and scholarly development as a physicist. The Physics MS Degree Programs are designed to give the student advanced training in all fundamental areas of physics through formal courses and the options of some degree of specialization or participation in original research in one of a variety of projects directed by the faculty.

The Doctor of Philosophy in Physics and Applied Physics Program combines the traditional elements of a science doctoral program with courses in specifically applied topics and internship in a technological environment. It is designed to produce highly trained professionals with a broad perspective of the subject which may prepare them equally well for careers in academic or in government or industrial laboratories. Current research in the department is predominantly in the areas of condensed matter physics, materials science, and high-energy physics and includes a wide range of theoretical work in solid state physics and experimentation in laser physics, optics, positron physics, solid state and surface physics, and high-energy physics.

## Admission Criteria

### Master of Science Program

For unconditional admission to the Master of Science program in physics, the candidate must satisfy the general admission requirements of the Graduate School, including a minimum undergraduate GPA of 3.0 on a 4.0 scale, as calculated by the Graduate School and favorable letters of recommendation from individuals able to assess the applicant's potential for success in a Masters program. In addition, the candidate should have satisfactorily completed at least 24 undergraduate hours of advanced physics and supporting courses and should have minimal GRE scores of 350 in Verbal, 650 in Quantitative, and 450 in Analytical Writing.

### Doctor of Philosophy Program

For unconditional admission to the Doctor of Philosophy program, an applicant must have a master's degree or 30 semester hours of graduate credit in physics or a related field and satisfy the general admission requirements of the Graduate School, including a minimum graduate coursework GPA of 3.0 on a 4.0 scale, as calculated by the Graduate School and favorable letters of recommendation from individuals able to assess the applicant's potential for success in a Ph.D. program. In addition, the applicant should have minimal GRE scores of 350 in Verbal, 650 in Quantitative, and 450 in Analytical Writing.

Applicants not meeting the minimum requirements of the department or the Graduate School for either program may still be considered for unconditional acceptance if other information in their application indicates a reasonable probability of success in graduate studies in physics.

### Probationary Admission

If an applicant does not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in their first 12 hours of graduate coursework at UTA.

### Deferred and Provisional Admission

A deferred application decision may be granted when a file is

## Department of Physics

[www.uta.edu/physics](http://www.uta.edu/physics)

### Areas of Study and Degrees Physics

M.S.

Physics and Applied Physics

Ph.D.

Mathematical Sciences

Ph.D.

(See Interdepartmental and Intercampus Programs.)

### Master's Degree Plans

Thesis and Non-Thesis

### Chair

John L. Fry

108 Science Hall, 817-272-2266

### Graduate Advisor

Q. Zhang

202B Science Hall, 817-272-2020

### Graduate Faculty Professors

Black, De, Fry,

Koymen, Musielak,

Ray, Rubins, Sharma,

Weiss, White

### Associate Professors

Brandt, Liu, Zhang

### Assistant Professors

Cuntz, Yu

incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

## Denial of Admission

A candidate may be denied admission if they have less than satisfactory performance on the admission criteria described above.

## Scholarships and Fellowships

Students that are admitted will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UTA in the Fall semester, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain their fellowships.

## Degree Requirements:

### Master of Science

A minimum of 30 hours is required for the Master of Science degree, of which 24 hours, including a six hour thesis (minimum registration), will be in physics, and six hours may be selected from physics, mathematics, chemistry, geology, biology, or engineering as approved by the Graduate Advisor.

## Degree Requirements:

### Doctor of Philosophy

Each candidate must complete the following program requirements:

1. Demonstration of competence in a minimum of 39 credit hours of core courses chosen under the guidance of the supervising committee from the following (or from courses approved in advance by the Graduate Studies Committee):

**Traditional core courses:**

PHYS 5306 Classical Mechanics  
 PHYS 5307, 5308 Quantum Mechanics I, II  
 PHYS 5309, 5313 Electromagnetic Theory I, II  
 PHYS 5310 Statistical Mechanics  
 PHYS 5311, 5312 Mathematical Methods in Physics I, II  
 PHYS 5315, 5316 Solid State I, II

**Applied Physics core courses:**

PHYS 5314 Advanced Optics  
 PHYS 5319 Mathematical Methods in Physics III  
 PHYS 6301, 6302, 6303 Methods of Applied Physics I, II, III  
 Computer Science as required by the supervising committee.

2. Internship: PHYS 6304, 6604, 6904; or 6 credit hours of research with a written report plus 3 hours of Applied Physics courses.
3. Dissertation and additional research and elective courses chosen under the guidance of the supervising committee.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Physics (PHYS)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5190. PHYSICS COLLOQUIUM (1-0).** Lectures by students, faculty and invited speakers on current topics in physics. May be repeated for credit. Graded P/F/R only.

**5305. CHAOS AND NONLINEAR DYNAMICS (3-0).** Introduction to basic principles and concepts of chaos theory and their applications in diverse fields of research. Topics include chaotic and non-chaotic systems, stability analysis and attractors, bifurcation theory, routes to chaos and universality in chaos, iterated maps, Lyapunov exponents, fractal dimensions, multifractals, hamiltonian chaos, quantum chaos, controlling chaos, self-organized systems, and theory of complexity. Prerequisite: permission of Graduate Advisor

**5306. CLASSICAL MECHANICS (3-0).** General principles of analytical mechanics, the kinematics of rigid bodies, canonical transformation, Hamilton-Jacobi theory. Prerequisite: PHYS 4319 or permission of Graduate Advisor.

**5307. QUANTUM MECHANICS I (3-0).** Matrix formulation, theory of radiation, angular momentum, perturbation methods. Prerequisite: permission of Graduate Advisor.

**5308. QUANTUM MECHANICS II (3-0).** Approximate methods, symmetry and unitary groups, scattering theory. Prerequisite: PHYS 5307 or permission of Graduate Advisor.

**5309. ELECTROMAGNETIC THEORY I (3-0).** Boundary value problems in electrostatics and magnetostatics, Maxwell's equations. Prerequisite: permission of Graduate Advisor.

**5310. STATISTICAL MECHANICS (3-0).** Fundamental principles of statistical mechanics, Liouville theorem, entropy, Fermi-Dirac distribution, Bose-Einstein distribution, Einstein condensation, density matrix, quantum statistical mechanics, kinetic methods, and transport theory. Prerequisite: PHYS 4315 or permission of Graduate Advisor.

**5311. MATHEMATICAL METHODS IN PHYSICS I (3-0).** Algebraic and analytical methods used in modern physics. Algebra: matrices, groups, and tensors, with application to quantum mechanics, the solid state, and special relativity. Analysis: vector calculus, ordinary and partial differential equations, with applications to electromagnetic



and seismic wave propagation. Prerequisite: permission of Graduate Advisor.

**5312. MATHEMATICAL METHODS IN PHYSICS II (3-0).** Continuation of PHYS 5311 with a selection from the following topics. Algebra: matrix representations of the symmetric and point groups of solid state physics, matrix representations of the continuous groups  $O(3)$ ,  $SU(2)$ ,  $SU(3)$ ,  $SL(2,C)$ , general covariance. Analysis: further study of analytic functions, Cauchy's theorem, Green's function techniques, orthogonal functions, integral equations. Prerequisite: PHYS 5311 or permission of Graduate Advisor.

**5313. ELECTROMAGNETIC THEORY II (3-0).** Modern tensorial treatment of classical electrodynamics, force on and field of a moving charge, derivation and application of 4-vector potential, Maxwell's equations in tensor form, field momentum and radiation. Prerequisite: PHYS 5309 or PHYS 5311 or permission of Graduate Advisor.

**5314. ADVANCED OPTICS (3-0).** Electromagnetic wave equations, theory of diffraction, radiation scattering and dispersion, coherence and laser optics. Additional advanced topics of current interest. Prerequisite: permission of Graduate Advisor.

**5315. SOLID STATE I (3-0).** Crystal structure, lattice vibration, thermal properties, and band theory of solids. Prerequisite: permission of Graduate Advisor.

**5316. SOLID STATE II (3-0).** Electrical and magnetic properties of crystalline solids, magnetic resonance, and optical phenomena. Prerequisite: permission of Graduate Advisor.

**5317. STATISTICAL MECHANICS II (3-0).** Methods in applied statistical mechanics. Topics may include fluctuations and critical phenomena, the Ising model, the master equation, transport in solids, and chaos. Prerequisites: PHYS 5310 and PHYS 5307, or permission of instructor.

**5319. MATHEMATICAL METHODS IN PHYSICS III (3-0).** Numerical methods for applied physics; computer techniques, numerical differentiation, integration, interpolation, extrapolation; differential equations, integral equations, statistical analysis; scientific computer library; artificial intelligence programming. Prerequisite: permission of instructor.

**5320. QUANTUM MECHANICS III (3-0).** Quantum theory of radiation; relativistic equations; elements of quantum field theory; symmetries and gauge theories. Applications in elementary particle physics and solid-state physics. Prerequisites: PHYS 5308 and PHYS 5312.

**5325. INTRODUCTION TO ELEMENTARY PARTICLES I (3-0).** An overview of particles and forces. Particle detectors and accelerators. Invariance principles and conservation laws. Standard model. Electromagnetic, weak, strong, and unified interactions. Prerequisite: basic quantum mechanics, special relativity.

**5326. INTRODUCTION TO ELEMENTARY PARTICLE PHYSICS (3-0).** Systematics of the quark model; the fundamental interactions of elementary particles; spin and relativistic kinematics; Dirac Equation; the standard electroweak model. Prerequisite: knowledge of quantum mechanics, special theory relativity.

**5328. SURFACE PHYSICS (3-0).** Experimental and theoretical methods for the study of solid surfaces. Geometric and electronic structure of metals and semiconductors. Surfaces as model systems of reduced dimensionality. Adsorption phenomena and film growth.

**5330. PHYSICS OF SEMICONDUCTOR PROCESSING AND CHARACTERIZATION (3-0).** Selection from the following topics: physics of crystal growth, lattice defects, impurity diffusion, ion-implantation, thin film growth and plasma etching. Physics of characterization techniques utilizing resistivity, carrier mobility and lifetimes, electrons, x-rays, ions, Rutherford backscattering, neutron activation analysis, positron annihilation spectroscopy, deep-level transient spectroscopy.

**5391. SPECIAL TOPICS IN PHYSICS (3-0).** Topics in physics, particularly from areas in which active research is being conducted, are assigned to individuals or small groups for intensive investigations. May be repeated for credit. Graded P/F/R. Prerequisite: permission of Graduate Advisor.

**5193-5393. READINGS IN PHYSICS.** Conference course. May be repeated for credit. Graded P/F/R. Prerequisite: permission of instructor.

**5194, 5294, 5394, 5694. RESEARCH IN PHYSICS.** Conference course with laboratory. May be repeated for credit. Graded P/F/R. Prerequisite: permission of instructor.

**5398, 5698. THESIS.** 5398 graded R/F only; 5698 graded P/F/R. Prerequisite: permission of Graduate Advisor.

**6301. METHODS OF APPLIED PHYSICS I—ELECTRONICS (3-0).** The analysis and design of electronic circuits for use in the laboratory. Transistors and integrated circuits in analog instrumentation. Digital logic. Information theory and signal processing.

**6302. METHODS OF APPLIED PHYSICS II—COMPUTERS IN PHYSICS (3-0).** Applications of computers in physics. Acquisition and analysis of experimental data. Vector and parallel processing, image processing, simulation.

**6303. METHODS OF APPLIED PHYSICS III—SPECTROSCOPY (3-0).** The principles (interactions, cross-sections, elastic and inelastic scattering, diffraction, coherence), the methodologies (sources, detectors, visualization), and applications (structure, dynamics, composition, excitations) of neutral and charged particle spectroscopies to condensed matter physics and materials science.

**6304, 6604, 6904. APPLIED PHYSICS INTERNSHIP.** Applied physics and engineering research and training in industry or other science or engineering departments of U.T. Arlington or other institutions requiring applied physicists. Faculty supervision and submission of technical progress reports required. Graded P/F only. Prerequisite: permission of Graduate Advisor.

**6391. SELECTED TOPICS IN APPLIED PHYSICS (3-0).** Topics chosen from research areas in the Department of Physics or at one of the institutions or corporations participating in the traineeship program in applied physics; emphasis on industrial and engineering applications. May be repeated for credit. Prerequisite: permission of instructor.

**6399, 6699, 6999. DISSERTATION.** 6399 and 6699 graded R/F only; 6999 graded P/F/R. Prerequisite: admission to candidacy for the Degree of Doctor of Science in Applied Physics.

**DISSERTATION—**See also Mathematical Sciences.

# Department of Psychology

[www.uta.edu/psychology](http://www.uta.edu/psychology)

## Areas of Study and Degrees

### Psychology

M.S.

(Emphasis in Experimental or Industrial Organizational)

### General Experimental Psychology

Ph.D.

### Mathematical Sciences

Ph.D.

(See Interdepartmental and Intercampus Programs.)

## Master's Degree Plans

Thesis

### Chair

Robert Gatchel

315A Life Science, 817-272-2281

### Graduate Advisor

Lauri A. Jensen-Campbell

313 Life Science, 817-272-2281

[lcampbell@uta.edu](mailto:lcampbell@uta.edu)

### Graduate Faculty

#### Professors

Amster, Bernstein, Brainerd,

Gatchel, Ickes, Levine,

Mellgren, Paulus, Reyna

#### Associate Professors

Fuchs, Jackson,

Jensen-Campbell, Kopp, Mann

#### Assistant Professors

Kimball, Peng

#### Visiting Assistant Professor

Frame

#### Professors Emeritus

Cox, Erickson

## Objective

The objective of graduate work in psychology is to educate the student in the methods and basic content of the discipline and to provide an apprenticeship in the execution of creative research.

Graduate work in the master's program will be offered in psychology. Graduate work in the doctoral program will be offered in general experimental psychology. Students' individual programs may be arranged to give emphasis to a particular aspect of the general program.

Within this framework, options include, but are not limited to, **Animal Behavior and Animal Learning, Cognition and Perception, Developmental, Industrial/Organizational, Behavioral Neuroscience, and Social-Personality Psychology.** Students specializing in Cognition and Perception may include, in addition to their area C courses (described below), advanced topical seminars in their area of specialty. In addition to core courses (see area A) for those interested in Behavioral Neuroscience, seminars offered in the recent past include Aggression and Nociception. For those seeking expertise in the Social-Personality area, in addition to the area B courses, seminars have included topics such as Social Influence and Empathetic Accuracy and Intersubjectivity.

**Animal Behavior Option**—Study in the area of animal behavior is also offered jointly by the biology and psychology graduate programs. Students specializing in animal behavior may initially enroll in the Master of Science program in either biology or psychology. There are a number of biology and psychology courses offered within this specialization. In addition to the courses specified in the catalog, advanced courses in Animal Behavior are often offered under enrollment in BIOL 5310 (Special Topics in Biology), PSYC 5389 (Contemporary Problems in Psychology), and PSYC 6300 (Seminar in Psychology). Recent courses offered under these titles include Animal Cognition, Behavioral Ecology, Behavioral Genetics, Developmental Psychobiology, Nociception, and Predator-Prey Interactions.

**Research Involvement**—Since the Psychology Department believes that graduate training should involve the student continuously in the research process, students are encouraged to make personal contacts by letter or E-mail with faculty members of their choice. A description of the faculty and their areas of research may be obtained by consulting the department Web page at [www.uta.edu/psychology](http://www.uta.edu/psychology) or by writing to or calling the department at 817-272-2281. Every effort will be made to assign the incoming student to a faculty member of choice, but priority is given to those who have discussed their placement in advance.

**Deadline for Financial Aid Applications**—Students who wish to be considered for assistantships should have their applications and departmental forms sent to The University of Texas at Arlington by April 1 for the Fall Semester and November 1 for the Spring Semester. Students who do not desire financial aid may apply at any time up to the deadline listed by the Graduate School.

## Admissions Criteria

There are no fixed criteria for admission to the M.S. or Ph.D. programs in Psychology. Of course, the student is expected to have successfully completed the appropriate work prior to admission. In the case of the M.S. program, an undergraduate B.A. or B.S. degree is required. As calculated by the graduate school, a minimum grade point average of 3.0 in undergraduate work is expected for unconditional admission. For the Ph.D., a minimum of 30 graduate hours with a GPA of 3.0 or better as calculated by the Graduate School is required.

Although we normally require at least a 3.0 average for unconditional admission, an average higher than 3.0 will not guarantee admission. Beyond these minimal criteria, there is no single criterion that determines whether a positive or negative admission decision is made.

**Our admissions focus is on seeking positive indication of potential success in the program.** These indications include:

1. A detailed examination of the student's transcript. Overall grade point average per se is not weighed as heavily as other grade indicants (e.g., grades in psychology) since most candidates for admission present averages greater than 3.0. Instead, we examine the coursework as evidence for research interest. Positive indicants of potential success in our program include greater than average work in psychology, the biological and physical sciences and mathematics. In similar fashion, evidence of experimental research previously undertaken is viewed as a predictor of future research. For students interested in specialization in Industrial/Organizational (I/O) Psychology at the Master's level appropriate coursework is taken into consideration.
2. Submission of Verbal, Quantitative and Analytical Writing GRE scores is required. High GRE scores in each area are viewed as positive indicants, while a low GRE score on one subscale need not exclude a candidate who shows positive indicants in other areas.
3. At least three letters of reference are required and will be used as evidence of strong commitment to experimental research (as in letters from an undergraduate research sponsor). We would prefer, if possible, letters from individuals such as your professors, who can comment on your academic abilities and potential. Evidence of success in employment relevant to I/O psychology will be considered for the Master's degree in that area.
4. The personal statement describing the applicant's laboratory, field, or applied interests, career plans and discussion of how the UTA program can serve to further these interests and plans will be examined for evidence of the appropriateness of the candidate to the UTA program.
5. Successful completion of a Master's degree in another department is viewed positively even when the degree was received in an area outside of psychology. In this latter case, some conditions in terms of make-up coursework may be specified.
6. As the expectation is that students will begin research in their first semester, they will be assigned a faculty member with whom they will work. This assignment will be based on space available in the student's program of interest and the fit of student to specific faculty's research interests. Since each area has its own criteria for admission, undergraduate interests deemed unsuitable by one faculty committee may be acceptable to another. The number of fully acceptable applicants generally exceeds the number admitted.

In summary the department views its mission in the MS/Ph.D. program as to train students to be skillful in research. Therefore we seek students who show aptitude in as well as motivation for research. Students interested in the terminal MS program in Industrial/Organizational Psychology will have their records examined for indicants of potential to succeed in industrial settings.

### Probationary Admission

If an applicant does not have a majority of the positive indications for unconditional admission described above, they may be considered

for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in their first 12 hours of graduate coursework at UTA.

### Deferred Admission

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

### Provisional Admission

An applicant unable to supply all documentation (including certified transcripts, GRE scores, letters of reference, and personal statements) prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

### Denial of Admission

Applicants whose records in the aggregate do not show sufficient positive indications of potential success will be denied admission.

### Eligibility for Scholarships/Fellowships

Students unconditionally admitted to the program are eligible for scholarship and fellowship support. The criteria applied will be the same as those applied to admission decisions. To be eligible, candidates must be new students coming to UTA in the Fall semester, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain their fellowships.

## Degree Requirements

In addition to the requirements outlined elsewhere, the Department of Psychology will require undergraduate courses in statistics and in experimental methods. These courses may be taken as deficiency courses.

Degree requirements for the Department of Psychology are established by the Committee on Graduate Studies in Psychology and supplement those established by the University (see general requirements of the Graduate School as stated under the section entitled "Admission Requirements and Procedures").

Each entering graduate student will be furnished a copy of the departmental rules which will serve as guidelines for departmental actions and recommendations.

Each student must adhere to the code of ethics of the American Psychological Association.

### Master of Science Degree

**Emphasis in Experimental Psychology**—30 hours, including six hours of thesis are required for this option. The program is designed to form the basis for the doctoral program. It is, however, open to those seeking a terminal master's degree. PSYC 5405, 5406, and 12 hours among 5313, 5321, 5322, 5333, 5345, and 6336 are required, including at least three hours from each area A, B, and C (see following).

As soon as is feasible, a student should decide on an area for concentration and research. After discussion with and consent of the involved faculty members, the student selects a supervising professor

and a thesis committee. No student may enroll in PSYC 5398 or 5698 until the thesis committee has approved a proposal for the thesis project.

**Emphasis in Industrial-Organizational Psychology**—50 hours in psychology and management are required for this degree, including six hours of internship. The program is designed as a terminal degree for those interested in careers in industrial-organizational psychology. Thirty-five hours are required in psychology. These are PSYC 5405, 5406, 5322, 5323, 5325, 5326, 6349 or 6355, 5321 or approved elective, and an internship and a capstone course. A master's thesis (PSYC 5398, 5698) may be substituted for the capstone, only upon approval from the program director. Required core management courses are MANA 5312 and 5340. Three additional management courses should be selected from PSYC 6300 or MANA 5321, 5323, 5325, 5326, 5327, 5334, and 5342. Approval for PSYC 6300 is required prior to enrollment. Students should do an internship in the summer after the first year and the capstone course at the end of their second year.

### Doctor of Philosophy

The degree of Doctor of Philosophy in experimental psychology requires distinguished attainments in both scholarship and original research, and the deep understanding of the strategic role of thoughtful experimentation in the development of an empirical science. Although the student must meet the minimum requirements of a planned course of study, the ultimate basis for conferring the degree must be the demonstrated ability to do independent and creative work and the exhibition of a profound grasp of the subject matter of the field.

**Mathematics**—Experimental psychology requires sophistication in mathematics. Prospective students are encouraged to recognize this trend and prepare themselves as well as possible. Mathematics from College Algebra through Calculus is desirable.

**Computer Knowledge Requirement**—Because of the fundamental and varied ways in which computers are applied in psychology, students are expected to understand their use and application in psychological research. Specifically, students are expected to demonstrate competence in the use of operating systems such as Windows or the Macintosh System, e-mail and other aspects of the Internet, standard office packages, data bases, programming languages (with specific reference to the programming of psychological experiments) and statistical packages such as SAS. This computer knowledge requirement has been established in lieu of the foreign language requirement. It may be satisfied by successful completion of PSYC 5348. If you feel that you already have the prerequisite knowledge to satisfy this requirement, see the graduate advisor to arrange a proficiency examination.

**Course requirements**—Entering graduate students will be required to take the following courses during their first four semesters of enrollment. Exceptions may be made only with written permission of the Committee on Graduate Studies.

Current Topics in Experimental Psychology (5110)

Statistics I (5405)

Statistics II (5406)

Experimental Design (5407)

Four of the following courses, at least one from each area A, B, and C:

**Area A:** 5333 Behavioral Neuroscience, 6336 Comparative Psychology

**Area B:** 5321 Personality, 5322 Social Psychology

**Area C:** 5313 Higher Mental Processes, 5345 Human Learning and Memory

Students with prior graduate work may be exempted from any of the above requirements by petition to the Committee on Graduate Studies. The petition should include a syllabus or other documentation showing that a prior course and one of our required courses are equivalent. Students should discuss course equivalency with the professor(s) who teach the course(s) in question before submitting a petition. Having fulfilled the above, the following are required:

1. An additional five courses (15 hours) from among lecture courses.
2. Two six-hour research courses. These may be taken from PSYC 5698 or PSYC 5600. Students who plan to obtain the MS should elect PSYC 5698 as one of the research courses and students who do not plan to obtain the MS should select two sections of PSYC 5600. If the student does not elect to obtain the MS, one of the research courses must result in a formal thesis-equivalent paper, which will be evaluated by a committee and defended in an oral examination. The two research courses are a minimum requirement. Students are strongly encouraged to take PSYC 5391 or 6391 before taking PSYC 5600 and 5698.
3. Nine hours of PSYC 6300.
4. Additional hours of coursework to be determined by the Graduate Advisor and dissertation committee. The student should plan to take approximately 90 hours including 6999. No student may enroll in a dissertation course until the dissertation committee has approved a proposal for the dissertation project.

A student has completed the course requirements when he or she has:

1. Maintained at least a B average in 5405, 5406, and 5407.
2. Maintained at least a B average in his or her area A, B, and C courses.
3. Received at least a B average in all other courses.

**Diagnostic Evaluations**—Doctoral students normally take diagnostic examinations in two areas between the fourth and fifth semester of graduate work. Satisfactory completion of the area A, B, and C course requirements by the end of the first four semesters is necessary for achieving satisfactory progress in the graduate program. It is also a condition for taking the diagnostic exams. Exceptions will rarely be made, and then only with the written permission of the Committee on Graduate Studies.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Psychology (PSYC)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5110. CURRENT TOPICS IN EXPERIMENTAL PSYCHOLOGY (1-0).** A survey of contemporary topics in experimental psychology. Prerequisite: admission to the graduate program in psychology or permission of the instructor.

**5112. TEACHING PSYCHOLOGY (1-0).** Required for teaching assistants during first semester of award. Topics will include: selecting appropriate course materials; preparing syllabi, lectures and demonstrations; audiovisual aids; grading; assisting special-needs students; dealing with academic dishonesty.

**5310. MATHEMATICAL MODELS IN PSYCHOLOGY (3-0).** Elementary probability theory, matrix algebra, and theory of linear difference equations applied to theoretical problems in learning, signal detection, decision processes, and social interactions.

**5313. HIGHER MENTAL PROCESSES (3-0).** Includes topics such as concept identification, problem solving, reasoning, and knowledge representation.

**5314. COGNITIVE DEVELOPMENT (3-0).** A survey of current theories of cognitive development. Recent research within topic areas, such as physical reasoning, spatial cognition, memory, and symbol use, will be used to evaluate the theories presented.

**5315. BEHAVIOR ANALYSIS (3-0).** Overview of operant theory with an emphasis upon contemporary problems. Basic concepts that are covered include: reinforcement and stimulus control, punishment, compound schedules, response topography, and chaining. Other topics include complex human operants, verbal behavior, behavior modification, and contingency management.

**5321. PERSONALITY PSYCHOLOGY (3-0).** A survey of contemporary topics in personality psychology, including personality assessment, strategies for studying personality, temporal stability and cross-situational consistency in behavior, and personality influence on social behavior.

**5322. SOCIAL PSYCHOLOGY (3-0).** A survey of contemporary topics in social psychology, including interpersonal attraction, altruism and aggression, attribution and social cognition, social influence, group dynamics, and social motivation.

**5323. GROUP PROCESSES (3-0).** Survey of the major topics in group dynamics. Among the issues covered will be performance, motivation, goal setting, decision-making, creativity, social influence, memory, leadership, teamwork, and collective behavior.

**5325. ORGANIZATIONAL PSYCHOLOGY (3-0).** Theory and research concerning human behavior in formal organizations, communication nets, dynamics of managerial jobs, and current ideas concerning organizations will be covered.

**5326. PERSONNEL PSYCHOLOGY (3-0).** Principles and techniques of employee selection, placement, succession planning, job analysis, recruitment, performance appraisal, validation, test bias and fairness. The use of various quantitative research techniques applied to human resource problems in organizations will be covered.

**5331. PERCEPTION AND ATTENTION (3-0).** Survey of methods and findings dealing with perception; emphasis will be upon behavioral rather than physiological considerations; particular topics include signal detection theory, form and pattern recognition, and attentional mechanisms.

**5333. BEHAVIORAL NEUROSCIENCE (3-0).** A survey of biological and physical processes underlying behavior. Emphasis on neural,

hormonal, and genetic determinants of behavior. Topics include regulatory behaviors, reward and nociceptive systems, differentiation and sociosexual behaviors, limbic and cortical functions.

**5337. ANIMAL COGNITION AND BEHAVIOR (3-0).** A survey of theory and data on how animals learn and represent the world and the evolutionary processes that influence their individual and social behavior.

**5341. DECISION MAKING (3-0).** Factors that influence categorical and numerical judgments, choices, and preference decisions. Comparison of human decision behavior with various quantitative theories.

**5345. HUMAN LEARNING AND MEMORY (3-0).** Survey of current approaches to the study of human learning and memory.

**5348. EXPOSURE TO CONTEMPORARY PC MICROCOMPUTERS (3-0).** Operating systems, ASCII editors, word processors, spreadsheets, graphics, data bases, programming languages, programming psychological experiments, statistical programming, using networks, the Internet, e-mail, Gopher, FTP, and Telnet.

**5151, 5251, 5351. READINGS IN PSYCHOLOGY.** Independent readings under the supervision of an individual faculty member. Students wishing to conduct research should sign up for PSYC 5191, 5291, or 5391. May be repeated for credit with consent of the Graduate Advisor. Graded P/F/R. Prerequisite: consent of the instructor.

**5389. CONTEMPORARY PROBLEMS IN PSYCHOLOGY (3-0).** Topics vary; may be repeated for credit with consent of Graduate Advisor.

**5390. CAPSTONE COURSE IN INDUSTRIAL-ORGANIZATIONAL PSYCHOLOGY (3-0).** Designed for students near or at the end of their I-O curriculum to demonstrate the ability to apply knowledge of industrial-organizational psychology.

**5191, 5291, 5391. RESEARCH IN PSYCHOLOGY.** Independent research under the supervision of an individual faculty member; may be repeated for credit with consent of Graduate Advisor. Graded P/F/R. Prerequisite: consent of instructor.

**5405. ADVANCED STATISTICS I (3-2).** Review of essential mathematical ideas and techniques, a survey of the basic concepts of probability theory, mathematical expectation, special distributions; parametric estimation theory.

**5406. ADVANCED STATISTICS II (3-2).** Statistical hypothesis testing, Bayesian inference, decision theory, linear regression and correlation; analysis of variance; distribution-free techniques.

**5407. EXPERIMENTAL DESIGN (3-2).** Statistical aspects of complex experimental designs used in psychological research. Prerequisite: PSYC 5406.

**5600. ADVANCED RESEARCH.** Supervised research. May be repeated for credit. Graded P/F/R. Prerequisite: consent of instructor.

**5610. INDUSTRIAL AND ORGANIZATIONAL INTERNSHIP.** Supervised internship in an organization related to area of major interest. No credit will be given for previous experience or activities. Prerequisite: consent of instructor.

**5398, 5698. THESIS.** 5398 graded R/F only; 5698 graded P/F/R. Prerequisites: 12 hours of advanced psychology and an approved thesis proposal.

**6300. SEMINAR IN PSYCHOLOGY (3-0).** Offered each semester. Topics vary. May be repeated for credit. Prerequisite: consent of instructor.

**6312. ANIMAL LEARNING (3-0).** Survey of contemporary topics in animal learning.

**6316. HISTORY AND SYSTEMS (3-0).** Consideration of the origins of psychology in the development of Western thought. Early conceptualization of problems and their modification with changes in evidence is emphasized.

**6317. PHYLOGENY AND ONTOGENY OF BEHAVIOR (3-0).** Selection contingencies as they operate to modulate behavior between phylogenic and reproductive cycles. Topics such as learning, conditioning, reinforcement, foraging, imprinting, modeling, social behavior, group selection, and cultural behavior will be treated as varieties of phyletic adaptation in the evolution of hominids.

**6318. SOCIAL AND PERSONALITY DEVELOPMENT (3-0).** Theory and research on social and emotional development with an emphasis on the interaction between individual needs and abilities and societal expectations and demands.

**6320. NEUROPHARMACOLOGY (3-0).** Survey of the basis of behavioral pharmacology including mechanisms and theories of drug actions, techniques and strategies of research, common psychoactive drugs, and the uses of drugs in clinical practice.

**6335. ANIMAL BEHAVIOR (3-0).** Phylogenetic approach to some basic problems in behavior, with special emphasis on unlearned behavior.

**6336. COMPARATIVE PSYCHOLOGY (3-0).** Theory and data about all aspects of behavior stressing similarities and differences across species.

**6338. NEURAL AND COGNITIVE MODELING (3-0).** Principles of neural network and dynamical systems modeling; application of these principles to the simulation of cognitive processes in both brains and machines; models of associative learning, pattern recognition and classification, and individual and group behavior. Prerequisite: consent of instructor.

**6343. COGNITIVE NEUROPSYCHOLOGY (3-0).** Surveys current experimental and clinical research and theory relating the brain and cognition. Emphasizes selected areas i.e., perception, attention, memory, language, and thinking.

**6346. EVOLUTIONARY PSYCHOLOGY (3-0).** Evolutionary processes influence behavior and thinking of humans and nonhuman species. Sociosexual behavior, aggression, cognition, and information processing from an evolutionary perspective will be among the topics covered.

**6347. ENVIRONMENTAL PSYCHOLOGY (3-0).** Survey of the current literature on the impact of various features of the physical environment on human behavior. Topics covered include crowding, privacy, territoriality, personal space, noise, the natural environment, residential, educational and work environments, urban and community design, and pollution and resource management. Designed to be of interest to graduate students in architecture, urban affairs, environmental science and engineering, geology, sociology, as well as those in psychology.

**6349. PSYCHOMETRIC THEORY (3-0).** Introduction to test construction. Topics include reliability theory, test validation, and item analysis.

**6355. MULTIVARIATE ANALYSIS (3-0).** Application of general linear model to special cases such as factor analysis, multiple regression, and discriminant analysis. PSYC 5344 recommended.

**6399, 6699, 6999. DISSERTATION.** 6399 and 6699 graded R/F only; 6999 graded P/F/R. Prerequisite: approved dissertation proposal. For students in the Ph.D. program in Mathematical Sciences, see Mathematical Sciences entry.

## Objective

The Master of Arts in Interdisciplinary Science program is designed to strengthen and update the knowledge and skills necessary to teach science at the elementary, middle school, or secondary level. The MAIS degree is intended to help prepare teachers who desire certification in science, teachers who may wish to expand their knowledge of specific science disciplines, or those who wish to update their knowledge in rapidly changing science disciplines. Traditional masters degrees focus on classes in a single science department and encourage mastery of material in a sub specialty within the discipline. A thesis involving scientific research in the area of specialization is usually encouraged. In contrast, the MAIS program allows students to explore two areas of interest, and the courses are designed to provide an overview of current knowledge in each field. Since this is not a research-oriented degree, no thesis is required.

The content of the required courses was developed to contain material consistent with TEKS requirements and to provide as much replicable laboratory experience as possible. While these classes are drawn from the foundational classes in each discipline, they are designed to cover the areas in greater depth, deal with historical aspects of the topics not covered in undergraduate classes, and focus on teaching and laboratory methodologies.

## Admission

### Unconditional

Students applying for unconditional admission to the MAIS program must meet the general graduate school admission requirements as outlined in the graduate catalog.

### Admission as Special Student

Students may apply for admission to the MAIS program as a "special student." Special student admission will allow an individual to enroll for 9 credit hours of MAIS coursework. Upon completion of 9 credit hours, the student must apply for unconditional admission to the MAIS program and pay an additional \$30 application fee. If the applicant has completed 9 credit hours of coursework with a 3.0 or higher, the completed coursework will substitute for the GRE examination.

## Degree Requirements

The MAIS degree is a 36 credit hour, non-thesis degree. Beginning students are encouraged to enroll in Contemporary Science, SCIE 5301, and students completing the degree enroll in a Capstone Science Seminar, SCIE 5302. These two courses constitute the science core. Students will select two areas of concentration from biology, chemistry, geology, mathematics, and physics. Each concentration will consist of four 3 credit hour courses for a total of 12 credit hours each. The remaining six credit hours may be taken as unrestricted electives. Students must file a degree plan approved by the graduate advisor prior to graduation.

## Science Education

[www.uta.edu/cos](http://www.uta.edu/cos)

### Areas of Study and Degrees

Interdisciplinary Science

M.A.

### Master's Degree Plan

Non-Thesis

### Director

Paul Paulus

206 Life Science, 817-272-3491

### Graduate Advisor

Edward T. Morton

206 Life Science 817-272-2309

### Graduate Faculty

Professors

Neill, Wickham

### Associate Professor

Epperson

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Science (SCIE)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5192, 5292, 5392. SELECTED TOPICS IN SCIENCE (3-0).** Topics in science not treated in the regular curriculum. Topic, format, and prerequisites to be determined by the instructor. May be repeated for credit as different topics are offered.

**5301. CONTEMPORARY SCIENCE (3-0).** This class will review modern topical areas in contemporary science from a broadly multidisciplinary view. Readings from popular and scientific journals will be combined with lectures from different disciplines, to review the newest science innovations. Materials presented will familiarize students with current research, major breakthroughs in various fields, and the foundational science behind the discoveries. Topics covered should enrich K-12 science curricula and help teachers to address student questions about breaking science news. This class is intended for M.A. in Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in the College of Science.

**5302. CAPSTONE SCIENCE SEMINAR (3-0).** The Capstone Science Seminar is an intensive research and discussion class that will focus on new studies in science education and practice. Students in the M.A. in Science program should take this class in the last semester of study. This class will include a research project relevant to science education, and formal presentation of the research. This class is intended for M.A. in Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in the College of Science.

**5303. TEACHING AND LEARNING: SCIENTIFIC INQUIRY (3-0).** Scientific inquiry refers to the diverse ways in which scientists study the natural world and propose explanations based on the evidence derived from their work. This course explores inquiry as it refers to the activities of students in which they develop knowledge and understanding of scientific ideas, as well as an understanding of how scientists study the natural world.

**5304. SPECIAL TOPICS IN SCIENCE I (3-0).** Seminar on significant research in science. Topics are selected with the assistance of the instructor and may include both pure and applied science.

**5305. SPECIAL TOPICS IN SCIENCE II (3-0).** Seminar on significant research in science. Topics are selected with the assistance of the instructor may include both pure and applied science.

**5307. INTEGRATED PHYSICS AND CHEMISTRY: CHEMISTRY (3-0).** This integrated study of physics and chemistry fundamental chemical principles including atomic structure, chemical bonding, the periodic table, nomenclature, kinetic theory, gas laws, chemical equations, and solutions. Prerequisite: permission of instructor.

**5308. INTEGRATED PHYSICS AND CHEMISTRY: PHYSICS (3-0).** This integrated study of physics and chemistry includes force and motion, waves and thermodynamics, energy transformations, quantum physics, and atomic structure. Prerequisite: permission of instructor.

## Biology (BIOL)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5371. CELL AND MOLECULAR BIOLOGY (3-0).** The course focuses on the chemical and molecular basis of life, including metabolism, cell structure and function and genetics. This class is intended for M.A. in Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Biology.

**5372. STRUCTURE AND FUNCTION OF ORGANISMS (3-0).** The study of structure and function on plants and animals. Topics to be covered include structure at the level of the cell, tissue, organ and individual, growth, transport/circulation/gas exchange, nutrition, reproduction, development, endocrinology, and animal neural regulation. This class is intended for M.A. in Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Biology.

**5373. EVOLUTION, ECOLOGY, AND BIODIVERSITY (3-0).** Reviews three significant aspects of organismal biology and presents current hypotheses concerning the origin and diversification of life on Earth. The ecological and behavioral interactions between organisms and their biotic/abiotic environments are considered from an evolutionary perspective. This class is intended for M.A. in Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Biology.

**5374. LABORATORY PROBLEMS IN BIOLOGY (2-2).** Laboratory experiments related to fundamental principles covered in BIOL 5371 and 5372. This course will utilize labs designed by Master Biology Teachers. These will be supplemented by labs published by the National Association of Biology Teachers, and various biology publishers. This class is intended for M.A. in Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Biology.

## Chemistry (CHEM)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5355. PRINCIPLES OF CHEMISTRY I (3-0).** The fundamentals of atomic structure, chemical bonding, the periodic table, nomenclature, kinetic theory, gas laws, chemical equations, and solutions. The course will be supplemented with laboratory demonstrations devoted to chemical problem-solving, library and Internet resources, chemical ethics, etc. This course is intended for M.A. in Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Chemistry.



**5356. PRINCIPLES OF CHEMISTRY II (3-0).** Study of advanced atomic structure and bonding concepts, acid-base theory, kinetics and equilibria, thermodynamics, electrochemistry, the chemistry of some elements. The course will be supplemented with laboratory demonstrations devoted to chemical problem solving, library and internet resources, chemical ethics, etc. This course is intended for M.A. in Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Chemistry.

**5357. INTRODUCTORY ORGANIC AND BIOCHEMISTRY (3-0).** Survey of organic and biochemistry with emphasis on applications to the human body. Organic functional groups and nomenclature, organic reactions, carbohydrates, lipids, proteins, enzymes, metabolism, and nucleic acid. This course is intended for M.A. in Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Chemistry.

**5358. LABORATORY PROBLEMS IN CHEMISTRY (1-4).** Experiments related to fundamental principles covered in CHEM 5355 and 5356. Volumetric and gravimetric determinations and qualitative analysis. This course is intended for M.A. in Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Chemistry.

## Geology (GEOL)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5330 EARTH SYSTEMS, PART I (3-0).** A review of Earth materials and their chemistry Earth structure and geologic time, followed by a detailed discussion of the Plate Tectonic System, the hydrologic System and their interaction in weathering and erosion, sedimentation and landscape development. Laboratory demonstrations will include identification of earth materials, estimating plate motions, location of earthquake epicenters, flood frequency and groundwater discharge. These classes are intended for M.A. In Science majors and may not be taken for credit for the M.S. or Ph.D. degrees in geology.

**5331. EARTH SYSTEMS, PART II (3-0).** A detailed discussion of the atmospheric system, oceanic systems, and biologic systems and their history. A summary discussion of the interaction of Earth Systems for an understanding of processes that have formed and continue to form the Planet Earth. Laboratory demonstrations will include weather forecasting, ocean currents, sea level change, and fossil identification. These classes are intended for M.A. in Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in geology. Prerequisite: admission into the M.A. in Science program.

**5332. EARTH RESOURCES AND THE ENVIRONMENT (3-0).** A detailed discussion of resources that support life: Atmosphere, water, soil, minerals and materials, and energy; the use of those resources and the effect on the environment and global change; and the relation between population, resource distribution and availability, and environmental pollution. These classes are intended for M.A. in Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in geology. Prerequisite: 5330, 5331, and admission into the M.A. in Science Program.

**5333. EARTH SCIENCE FIELD METHODS (3-0).** Use of maps, coordinates and the global positioning system; sampling methods in

the field; computer analysis of map data; describing a rock sequence; mapping geological formations; use of well data and geophysical data. Course will be conducted outdoors and may involve strenuous physical activity. Prerequisite: Geology 5330, 5331 and admission into the M.A. in Science Program. These classes are intended for M.A. in Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in Geology. A lab fee plus a special fee for lodging, meals and transportation when away from U.T. Arlington will be charged.

**5335. LABORATORY METHODS AND TECHNIQUES (2-3).** Methods and techniques used to identify minerals, rocks and fossils; maps and mapping of geological data; recognition of landforms and their development; slope stability and landslides; flood frequency and erosion processes of rivers and streams; location of earthquakes. These classes are intended for M.A. in Science majors, and may not be taken for credit for the M.S. or Ph.D. degrees in geology. Prerequisite: GEOL 5330, 5331 and admission into the M.A. in Science Program.

## Mathematics (MATH)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5333. LINEAR ALGEBRA AND MATRICES (3-0).** Linear spaces, linear transformations, vector norms, Gaussian elimination, Jordan form, eigenvalues, quadratic forms, and related topics. Prerequisite: MATH 3330 or consent of instructor.

**5336. NUMBER THEORY (3-0).** Topics include mathematical induction, fundamental theorem of arithmetic, inequalities, special sequences and sums, divisibility properties, greatest common divisor, division and Euclidean algorithm, properties of congruence and Diophantine equations.

**5337. ADVANCED PLACEMENT CALCULUS (3-0).** Topics studied include limits, continuity, differentiation, integration, numerical approximations, applications and Taylor series. All topics will be studied in a manner consistent with the AP Examination and grading process.

**5340. DISCRETE MATHEMATICS (3-0).** Topics from combinatorics, sequences and recurrence relations, finite graph theory, and applications of matrices with the use of a graphing calculator and other appropriate technology.

**5341. MATHEMATICS FOR TEACHERS—GEOMETRY (3-0).** Selected materials from geometry.

**5342. MATHEMATICS FOR TEACHERS—ALGEBRA (3-0).** Selected materials from algebra, including probability, statistics, and theory of equations.

**5343. PROBABILITY AND STATISTICS (3-0).** Consideration of (1) exploring data: descriptive statistics of situations involving one and two variables; (2) anticipating patterns: probability and simulation; (3) design of experiments and planning a study; (4) statistical inference: confirming models. Use of a graphing calculator and other appropriate technology.

**5345. MATHEMATICS FOR TEACHERS—ANALYSIS (3-0).** Selected materials from analysis including concepts and topics consistent with precalculus and elementary calculus.

## Physics (PHYS)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5301. MECHANICS, HEAT AND WAVE MOTION (3-0).** This course is intended for students who wish to achieve a higher level of knowledge and effectiveness in fundamental physics (not available for M.S. or Ph.D. credit in Physics). Topics include: 1) Newton's laws of motion, gravitation, and planetary motion; 2) the basic laws of thermal and statistical physics; 3) oscillatory motion including waves and sound. Replaceable experiments will be demonstrated throughout the course.

**5302. ELECTRICITY, MAGNETISM, CIRCUITS, AND OPTICS (3-0).** This course is intended for students who wish to achieve a higher level of knowledge and effectiveness in fundamental physics (not available for M.S. or Ph.D. credit in Physics). Topics include: 1) Static charges, current flow, electric and magnetic fields; 2) simple

DC/AC electrical circuits including examples from household circuit and practical electronic devices; 3) light and optics including examples such as camera, microscopes and telescopes. Replaceable experiments will be demonstrated throughout the course.

**5303. MODERN PHYSICS (3-0).** This course is intended for students who wish to achieve a higher level of knowledge and effectiveness in teaching of fundamental physics (not available for M.S. or Ph.D. credit in Physics). Topics include: 1) Introduction to special relativity and quantum theory, 2) light and radiation; 3) applications to modern electronic devices; 4) nuclear and particle physics.

**5329. LABORATORY TECHNIQUES IN PHYSICS (0-3).** This course is intended for students who wish to achieve a higher level of knowledge and effectiveness in teaching of fundamental physics (not available for M.S. or Ph.D. credit in Physics). Experiments demonstrating various topics are covered. Experiments include gravitational acceleration heat flow, harmonic motion, sound, electric magnetic fields, electric circuits, optic, x-rays and nuclear radiation.

# The School of Social Work

Dean: Santos H. Hernández, Ph.D.

211 S. Cooper St., Social Work Complex • Box 19129 • 817-272-3181 • [www2.uta.edu/ssw](http://www2.uta.edu/ssw)

## Mission and Philosophy

The UTA School of Social Work prepares competent, effective social workers and generates and disseminates knowledge focused on promoting social and economic justice for human well-being in a global community.

## History and Overview

The School of Social Work was established as the Graduate School of Social Work in 1967 by an act of the Texas Legislature. It became the School of Social Work in 1991 when the University's undergraduate social work program in the College of Liberal Arts merged with the school's graduate program.

More than 4,000 students have earned degrees at the school and many hold key management positions in public agencies and nonprofit organizations nationwide. Currently, the school has a diverse student body of approximately 600 MSSW graduate students and 60 Ph.D. students. Many of these students also hold full- or part-time positions in public agencies and nonprofit organizations.

One distinguishing feature of the school is its location in the heart of the Dallas-Fort Worth Metroplex, a rich urban laboratory of more than 150 cities with a population over 4.5 million. This complex social arena offers a wide array of opportunities for student projects, field placements and employment. Social work faculty, staff and students work on "real-life" social problems in cooperation with city governments, public agencies and nonprofit organizations.

## Accreditation

The Council on Social Work Education has fully accredited the MSSW program. Accreditation is an important consideration for students because many professional social work positions require a degree from a CSWE accredited program. Academic credit for life experience and previous work experience is not given.

## Scholastic Activity and Research Interests of the Faculty

School of Social Work faculty engage in research and community-service projects that enhance the effectiveness of the programs of public and nonprofit social-service organizations, that promote social justice and equality, and that extend the body of knowledge about social issues. Research topics span the broad range of social-work issues, including feminist theory, minority rights, child abuse, mental illness, ethics, aging, sexual abuse, community development, lesbian and gay persons, marital and family therapy, family violence, clinical assessment, stalking, constructivism, cognitive-behavioral treatment efficacy, adoption, siblings, foster care, African American fathers, substance abuse, social policy, and evaluations of state and federal child-welfare and community-service programs.

## Programs

The School of Social Work currently offers two graduate programs of study: the Master of Science in Social Work (MSSW) and the Ph.D. The Ph.D. program offers two options: the Ph.D. in Social Work or a specialty in comparative social policy, in collaboration with La Universidad Autonoma de Nuevo Leon, that is taught in Texas and Mexico and requires fluency in English and Spanish. Degrees are awarded from both universities.

The school offers distance education MSSW programs in cooperation with other universities across the state. More than 400 students have graduated from such programs. Courses are also offered via the Internet and telecommunication for local students and those in distance education programs.

The school also offers training, research and service opportunities to faculty and students through its centers and other programs. The Judith Granger Birmingham Center for Child Welfare provides support and graduate training to current and potential child-welfare workers and supports faculty and student research on child-welfare issues. The Community Services Center is an instructional facility that provides a university-community partnership addressing community issues. The partnership enables university students, faculty and neighborhood organizations to work together to tackle complex socioeconomic issues facing the neighborhoods that surround them, such as poverty, domestic violence, homelessness and community revitalization. The purpose of the center is twofold: to provide professional training for graduate students and to provide professional services to the community. Community development interns conduct needs assessments, write grant proposals, design new programs, conduct evaluations, perform research and organize action groups. Community clinic interns provide affordable counseling for children, adolescents and families. Counseling services include individual counseling, marriage counseling, premarital counseling, family therapy, group counseling, anger control therapy, and social skills training. The community clinic also provides graduate interns an opportunity to conduct research programs in the area of counseling. The Center for Research, Evaluation and Technology involves students and faculty in program evaluations for local social service agencies and in the development of new and innovative ways to support human services practice. The Professional Development Program provides continuing education seminars for social work practitioners and other human services professionals. The seminars provide the continuing education units necessary for license renewals.

The school hosts another program, the Guest Lecture Series which features professors, researchers, clinicians and national program directors, all experts in their fields. The series serves as an educational forum on social work issues.

# Social Work

[www2.uta.edu/ssw](http://www2.uta.edu/ssw)

Area of Study and Degrees  
Social Work  
M.S.S.W., Ph.D.

Master's Degree Plans  
Thesis and Non-Thesis

## Dean

Santos H. Hernández  
211 Social Work, 817-272-3944

## Associate Dean

Donald K. Granvold  
211 Social Work, 817-272-3940

## Assistant Dean

Larry Watson  
211 Social Work, 817-272-2423

M.S.S.W. Graduate Advisor  
and Director

Ski Hunter  
301 Social Work, 817-272-3948

Ph.D. Graduate Advisor  
and Director

Joan R. Rycraft  
112 Social Work, 817-272-5225

Director of Admissions

Yvette Gonzalez  
211 Social Work, 817-272-3209

Graduate Faculty  
Professors

Callicutt, Dangel, Duehn, Elliott,  
Granvold, Hegar, Hunter, Jordan,  
Mayadas, Mindel, Pillai,  
Scannapieco, Schoech, Watts

Associate Professors

Barrett, Cobb, Hoefler,  
Lehmann, Quinn, Rycraft  
Debra Woody, Yu

Assistant Professors

Basham, Collier-Tennison, Diaz, Johnston,  
Moon, Spence-Diehl, David Woody

# Master of Science in Social Work

## MSSW Goals and Curriculum Objectives

The liberal arts perspective and the generalist perspective support the MSSW curriculum which includes a generalist foundation and three specialties (child/family, mental health, and administration and community planning). Goals and objectives include:

**Goal 1 (Foundation):** Students will acquire a foundation of generalist knowledge through a curriculum that includes content on the history of the social work profession and its current structures and issues; social policy; human behavior and the social environment; technology use; research and evaluation; diversity, oppression, and social justice; values and ethics; micro and macro practice; and field practicum.

Objectives:

- (1) Students will demonstrate knowledge of and application of the generalist foundation.
- (2) Students will demonstrate knowledge of and the skills to implement the purpose of social work (which is to strengthen the capacities of individuals, families, groups and communities to address their needs and well-being) and the purpose of social work education (which is to provide competent and effective services for poor and oppressed persons and to work to alleviate poverty, oppression and discrimination).
- (3) Students will demonstrate knowledge of and skill to implement the profession's values and ethics, as stated in the NASW Code of Ethics.

**Goal 2 (Foundation):** Students will acquire evidenced-based knowledge and critical-thinking skills to apply the best practice interventions especially for those in diverse, oppressed and disenfranchised populations.

Objectives:

- (1) Students will demonstrate the skills to use critical-thinking skills to address inequity, injustice and oppression.
- (2) Students will demonstrate the skills to use critical-thinking skills when they assess the type of services needed for diverse populations and when they assess interventions to use.

**Goal 3 (Advanced Year):** In the advanced year, students will demonstrate an understanding of and application of the integrative-comparative social work perspective, critical-thinking skills, and evidence-based practice knowledge in their specialty area (family/child, mental health, or administration and community planning).

Objectives:

- (1) Students will demonstrate in the specialty courses an understanding of and application of the integrative-comparative social work perspective.
- (2) Students will demonstrate in their specialty courses critical-thinking skills in their selection of theories and interventions for practice.
- (3) Students will demonstrate in their specialty courses the knowledge and skills to conduct evidence-based practice with autonomy.
- (4) Students will demonstrate in their specialty courses the skills to use multiple research methods to evaluate programs, interventions and outcomes.

## Application and Admission Requirements

Students are admitted to the program for Fall, Spring, and Summer Semesters. Advanced Standing students only are admitted for Summer. Completed applications must be received no later than March 15, for Summer and Fall Semesters, and October 31, for Spring Semester.

Please note that the School of Social Work's deadline for application is different from the published deadlines of the Graduate School.

## Admission Criteria for the Master's Program

1. A bachelor's degree with a liberal arts perspective including instruction in the behavioral and biological sciences (including human biology) from an accredited college or university.
2. Undergraduate GPA must be equal to or greater than 3.0 in the last 60 hours as calculated by the Graduate School or one must attain a 1000 GRE score (V&Q).
3. Three letters of reference indicating professional or academic promise.
4. Personal statement providing evidence of professional or academic goals consistent with the Social Work Program.
5. Personal qualifications considered essential to the successful practice of social work including leadership ability, personal maturity, motivation for a human service profession and experience in social work. A personal interview may be required.
6. Applicants to the school whose native language is not English must take, in addition to the Test of English as a Foreign Language, the Test of Spoken English.

**Unconditional MSSW Admission:** An applicant is admitted unconditionally when all documentation relating to admissions criteria is received and performance on a majority of the criteria is acceptable.

**Probationary Admission:** Candidates with less than a 3.0 GPA in the last 60 hours of undergraduate program as calculated by the Graduate School and less than 1000 on the GRE (V&Q) may be admitted on probation if other admission criteria are satisfactory and indicate academic potential.

**Provisional Admission:** An applicant unable to supply all required documentation prior to the admission decision deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

**Denial of Admission:** Candidates may be denied admission if they have less than satisfactory performance on a majority of the admissions criteria.

**Deferred Admission:** A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

Neither probationary nor provisional admission will be granted to an applicant with less than a 3.0 GPA on the last two years of a bachelor's degree (approximately 60 hours) when the required GRE score is lacking.

## Financial Aid

Sources of scholarships awarded annually and administered by the School of Social Work are listed below.

- Judith Granger Birmingham Scholarship Fund
- Roy and Betty Dulak Award

- Lila B. Hagins Scholarship Fund
- Glen W. Rollins Mental Health Graduate Scholarship Fund
- Coleen Shannon Scholarship Fund
- Fred Souflée Scholarship Fund

A limited number of traineeships is available through Child Protective Services.

## Graduate Fellowships

Candidates for fellowship awards must have a GPA of 3.0 in their last 60 undergraduate credit hours and in any graduate credit hours, and must be enrolled in a minimum of 6 hours in both long semesters to retain their fellowships.

## Degree Requirements

The program leading to the degree of Master of Science in Social Work covers a minimum of four semesters for full-time students and requires the completion of 64 semester hours of graduate work including class and field instruction, as well as thesis or integrative seminar.

In addition to the requirements of the Graduate School, each graduate student in the social work program must (1) maintain at least a B (3.0) overall GPA in all coursework; (2) demonstrate suitability for professional social work practice; and, (3) demonstrate knowledge of and adherence to the Code of Ethics of the National Association of Social Workers and if licensed in Texas the Code of Ethics as currently published by the Texas Council for Social Work Examiners.

At such time as questions are raised by Social Work faculty or field instructors regarding a student's violation of any of the above requirements, the student will be notified and will be provided the opportunity to respond to the Academic and Professional Standards Committee. The committee will review the student's performance and make a recommendation concerning the student's eligibility to continue in the program. Appeal of a recommendation may be made to the Dean of the School of Social Work.

## Advanced Standing

An applicant who has graduated from an accredited undergraduate program in social work may request admission to the graduate program with advanced standing. All regular admission requirements must be met and the bachelor's degree in social work must have been conferred no more than six years prior to the date of enrollment.

Advanced standing students may receive credit hour waivers for some undergraduate social work courses which are considered equivalent to the first and second semester courses, provided the student's grades in those courses are B or better. Students may receive course waivers for more than 20 hours, but only 20 hours may be applied to the 64-hour MSSW degree.

## Dual Degree Programs

Students in social work may participate in one of five dual degree programs whereby they can earn a Master of Science in Social Work and 1) a Master of City and Regional Planning, 2) a Master of Public Administration, 3) a Master of Arts in Urban Affairs, 4) a Master of Arts in Criminology and Criminal Justice, or 5) a Master of Arts in Sociology. By participating in a dual degree program, students can

apply some semester hours jointly to meet the requirements of both degrees, thus reducing the total number of hours which would be required to earn both degrees separately. The number of hours which may be jointly applied ranges from 6 to 18 hours, subject to the approval of Graduate Advisors from both programs.

To participate in the dual degree program, students must make separate application to each program and must submit a separate Program of Work for each degree. Those interested in a dual degree program should consult the appropriate Graduate Advisor(s) for further information on course requirements. See also information on Dual Degree Programs in the Advanced Degree Requirements section of this catalog.

## Part-Time Students

Admission and degree requirements for part-time students are the same as those for full-time students. Likewise, part-time students must maintain the performance level required of full-time students.

## Doctor of Philosophy in Social Work Objectives

The program leading to the Doctor of Philosophy in Social Work is designed to prepare scholars to advance knowledge development and dissemination for the profession of social work. Upon completion of the Ph.D. Program students will display competency in theory and theory development; knowledge and skills in research methods and data analysis; theory, research, and policy as applied to a specialty practice area; understanding and commitment to the underlying values, ethics, and social and economic justice perspectives in the scientific inquiry in social work; and theory and research as applied to social work practice, policy, and social work education. Graduates of the program are expected to make a significant contribution to the profession of social work through their own continued research, teaching, scholarship and service.

A specialty in comparative social policy is offered in conjunction with the Universidad Autonoma De Nuevo Leon (UANL) Monterrey, Mexico. Students will complete their first year of doctoral courses at the UANL Graduate School of Social Work. Classes at UANL will be conducted in Spanish and taught by UANL faculty. Students will complete their second year at the U.T. Arlington School of Social Work. Classes will be taught in English by U.T. Arlington faculty.

## Admission Criteria for the Ph.D. Program

To be admitted to the Doctor of Philosophy in Social Work program, an applicant must satisfy the general admission requirements of the Graduate School and his or her academic record must show preparation for advanced study in social work. The students accepted for admission are those whose academic achievements, previous experience, and aptitude for research and scholarship indicate the potential for achieving the objectives of the program. In addition, admission to the program requires:

1. Master's degree in Social Work or related field, and a background in social and behavioral science and research methods is desirable.
2. Undergraduate GPA of 3.0 minimum, on the last 60 hours as calculated by the Graduate School.
3. Master's GPA of 3.4 minimum as calculated by the Graduate school.

4. A Graduate Record Examination or EXADEP score that evidences an ability to do satisfactory graduate work if master's GPA is less than 3.4.
5. Transcripts of all undergraduate and graduate work.
6. Curriculum vita.
7. Academic goals consistent with the Social Work Program.
8. Professional writing sample.
9. Three letters of recommendation indicating professional and academic potential.
10. A score of 550 on the written TOEFL Examination or 213 on the computer version if an applicant's first language is not English.

**Unconditional Ph.D. Admission:** An applicant is admitted unconditionally when all documentation relating to admissions criteria is received and performance on the criteria is acceptable.

**Probationary Ph.D. Admission:** An applicant whose Master's GPA is below 3.4 or that scores on the GRE or EXADEP do not indicate ability to do satisfactory graduate work. May be admitted on probation when performance on the majority of the remaining criteria is acceptable.

**Provisional Admission:** An applicant unable to supply all required documentation prior to the admission decision deadline but that otherwise appears to meet admission requirements may be granted provisional admission.

**Denial of Ph.D. Admission:** Candidates may be denied admission if they have less than satisfactory performance on a majority of the admissions criteria.

**Deferred Admission:** A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

An application for admission, transcripts of previous academic work and Graduate Record Examination or EXADEP scores must be submitted to the Graduate School of the University. An additional separate application and supporting materials must be sent to the Graduate Advisor, Ph.D. in Social Work Program.

## Degree Requirements

The program leading to the degree Doctor of Philosophy in Social Work covers nine semesters (three years) of full-time study and requires the completion of 54 semester hours of graduate work including coursework, comprehensive examinations and a dissertation. Students and their faculty supervisory committee together develop a plan of study geared to the students' interests. Included in this plan are a set of required and elective courses in which students pursue their specialized interests.

- a) 27 hours of required courses that include 18 hours of core coursework. The core coursework qualifying comprehensive examinations must be satisfactorily completed before progressing in the program.
- b) a minimum of six hours and maximum of nine hours Research Practicum.
- c) three or more hours of electives selected in consultation with the student's advisory committee.
- d) six hours electives selected from relevant graduate courses offered outside the School of Social Work.

- e) on completion of 42 hours of required or elective coursework, the specialty comprehensive examination is taken prior to application for candidacy and registration for dissertation.
- f) three hours of dissertation tutorial taken upon successful completion of core and specialty comprehensive examinations.
- g) nine hours of dissertation to be taken the semester in which the student plans to graduate.

Successful completion of the comprehensive examinations in both core and specialty areas of study advances the student to candidacy at which time he or she devotes time to the completion of the dissertation. The last step before the degree is awarded is the final examination, which is focused on the defense of the dissertation.

Doctoral students must demonstrate knowledge of and adherence to the Code of Ethics of the National Association of Social Workers and the Code of Ethics as currently published by the Texas State Board of Social Worker Examiners.

## Social Work (SOCW)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

### Curriculum: Master of Science in Social Work

The curriculum is organized around six curriculum areas. Required and elective courses are offered in each curriculum area. Students must complete foundation (first year) required courses before taking advanced (second year) courses. In the advanced year, a specialty is selected in child/family, mental health, administration, community practice, and a combination of administration and community practice. First year courses have 5000 numbers; second year courses have 6000 numbers. Master's level students are also allowed to take doctoral level courses with permission of the instructor.

### Human Behavior and the Social Environment

Students are required to take SOCW 5301 (Human Behavior and the Social Environment) and SOCW 5317 (Race, Ethnicity, and Women). Additionally, students choose one other course from the Human Behavior and the Social Environment curriculum area that matches their specialty.

**5301. HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT I (3-0).** Exploration of behavioral and social science knowledge of human behavior and development through the life course. Examines major systems in society: individual, group, family, and community; and the diversity of ethnicity, race, class, sexual orientation, and culture.

**5317. HUMAN BEHAVIOR AND DIVERSE POPULATIONS (3-0).** Introduction to theoretical, practical, and policy issues related to race, ethnicity, and women. Historical, political, and socioeconomic forces are examined that maintain racist and sexist values, attitudes, and behaviors in society and all levels of organizational behavior. SOCW 5301 must be taken before or concurrently with this course.

**6310. SEMINAR IN WOMEN'S ISSUES (3-0).** Examines women's development within psychological and sociological contexts; applies theories to understanding roles women take within families and the workplace.

**6320. PERSONAL RELATIONSHIPS (3-0).** Explores theoretical and empirical material on linkup initiation, maintenance, and termination. Identifies areas for intervention.

**6323. PERSPECTIVES IN MENTAL HEALTH (3-0).** Examination and analysis of theories of mental health and disorders, perspectives on the etiology and epidemiology of mental disorder and the institutional response to problems in mental health (e.g. "asylums", community mental health programs).

**6330. CHILD DEVELOPMENT (3-0).** Reviews and analyzes a number of theoretical and empirical approaches to understanding the development of the child through adolescence; implications for practice and policy.

**6331. THEORIES OF FAMILY (3-0).** Reviews a variety of theoretical approaches useful in understanding the family. Implications for practice at the policy, community, and interpersonal levels are discussed.

**6332. ADULT DEVELOPMENT (3-0).** Explores selected issues and themes associated with early and middle adulthood. Issues pertinent to practice, such as the developmental change process, are also examined.

**6333. AGING IN AMERICAN SOCIETY (3-0).** Explores the elderly population in American society. Includes discussion of social gerontology, a description of the aged in the United States and across cultures. Changes among the elderly such as health, finances and social roles are studied.

**6337. PSYCHODYNAMICS (3-0).** Major aspects of psychodynamics theory derived from Freud and the recent ego psychologists are used in an analysis of the life cycle. Implications for social work practice are drawn, particularly application of the theory for practice with special groups: minorities, women, and lower socioeconomic groups.

**6342. HUMAN BEHAVIOR IN MACRO ENVIRONMENTS (3-0).** Offers advanced students the opportunity to study people's behavior within large and complex social settings including: natural helping networks and ontological communities, organizations and bureaucracies, and social and political movements. Meets the advanced Human Behavior requirement for students pursuing CAP specializations. Prerequisites: SOCW 5301 and SOCW 5317.

**6365. SEXUAL AND GENDER IDENTITIES (3-0).** Reviews various life experiences and psychosocial challenges characteristic of lesbian, gay, bisexual, and transgender persons. Interventions for these populations will be identified.

### Social Welfare Policy and Services

Students are required to take SOCW 5303 (Foundations of Social Welfare Policy and Services) and one other course from this content area that matches their specialty.

**5303. FOUNDATIONS OF SOCIAL POLICY AND SERVICES (3-0).** Examines how social goals are met by social welfare institutions. Conceptual schemes are developed for analyzing the structure of social welfare institutions and evaluating social welfare sub-systems. The social work profession also is examined in the context of the evolution and function of the contemporary American social welfare system. Required of all first-year students.

**6301. POLITICS AND SOCIAL POLICY (3-0).** Politics are key to developing social policy. Students learn theory and skills to impact policy processes at local, state and national levels. Examines the role of the social work profession in politics. This course may be chosen as a Policy, Administrative Practice or Community Practice elective. Prerequisite: 5303 or equivalent.

**6303. POVERTY, INEQUALITY AND SOCIAL POLICY (3-0).** This course examines the nature and extent of poverty and inequality

in the United States, their causes and consequences, and the debate concerning the role of government in providing anti-poverty programs. Many points of view are presented, from the radical left to radical right. Prerequisite: SOCW 5303.

**6304. SOCIAL POLICY AND CHILD WELFARE (3-0).** Examination of current policies, programs, and practices. Attention given to new perspectives on the delivery system and staffing in child welfare. Through analysis and research, students are provided knowledge for more effective practice in the field of child welfare.

**6319. SOCIAL POLICY AND MENTAL HEALTH (3-0).** Studies programs and policies in the field of mental health. An analytical model is employed in the process of examining critical issues in the mental health arena.

**6321. SOCIAL POLICY AND SUBSTANCE ABUSE (3-0).** Examines policies and programs regarding substance abuse. An analytical model is employed in the process of studying critical issues in the substance abuse arena.

**6334. WOMEN AND FAMILY POLICY (3-0).** Policies affecting women and the family; interaction of women with other social institutions (family, economy, policy); the unique impact of policies upon families and women of color; cross cultural comparisons and political strategies; the role of the social work profession in this policy field.

**6338. SOCIAL SERVICES AND SOCIAL POLICY (3-0).** Broad acquaintance with, and analysis of, the social services and their role within social welfare policy. A variety of social services examined as well as modes and methods of providing these services, degree of effectiveness of various services in adequately serving clients, service gaps or duplication, and related areas.

**6345. HEALTH POLICY (3-0).** Historical, current, and projected national and local health policies and roles of providers and consumers of health care examined; service demands, economic, access, and regulatory issues analyzed; relationships between governmental, voluntary, and commercial sectors studied; analytic frameworks for the understanding and development of policies developed.

**6349. AGING AND SOCIAL POLICY (3-0).** Social welfare policies and programs are examined in terms of the overall impact on the aged and society. Needs and gaps in services to the aged are evaluated, especially concerning minority and low-income aged. Current issues in aging policy are examined.

**6354. SOCIALLY OPPRESSED GROUPS, SOCIAL EXCLUSION AND SOCIAL JUSTICE (3-0).** Past and present policies are examined related to people with disabilities, substance abusers, lesbians and gay men, juvenile delinquents, women convicted of criminal offenses, sex offenders and others who for various reasons experience social exclusion, stigma and social control. Theoretical bases of societal reaction to these groups and the impact on social policy and social work practice is considered.

## Direct Practice

Students are required to take SOCW 5304 in the foundation year and in the advanced year SOCW 6325 (Advanced Micro Practice), and SOCW 6326 if their specialty is child/family or SOCW 6336 if their specialty is mental health. Students also take an additional DP course from those listed below that matches their specialty requirements.

**5304. GENERALIST MICRO PRACTICE (3-0).** This foundation level course introduces graduate students to both theory and methods for social work practice with individuals, families, and small groups. It emphasizes a generalist perspective, beginning interviewing and

relationship skills, problem assessment, goal setting, and contracting. Special attention is given to the common roles assumed by social workers (e.g. facilitator, broker, advocate). Required of all except advanced standing students.

**5309. PROFESSIONAL FOUNDATIONS OF SOCIAL WORK (3-0).** Gives students a broad perspective on the profession of social work including its history, mission, goals, values and ethics, educational and organizational structure, and legal regulations. Required of all except advanced standing students.

**6306. CLINICAL ASSESSMENT (3-0).** Reviews and builds on the fundamentals of clinical assessment. Topics are covered in considerable depth and practiced with social work clients. Advanced topics include behavioral observation, self-anchored rating scales, client surveys, standardized measurement and scales, single-subject designs, family assessment tools and categorical systems.

**6308. ADVANCED CASE MANAGEMENT (3-0).** Case management is recognized as a major social work practice strategy. It is essential to effective service delivery in diverse settings. This course examines case management models and functions guiding practice.

**6311. SEMINAR IN DIRECT METHODS IN COUPLES COUNSELING (3-0).** Examination of various psychological, social, and cognitive-behavioral treatment approaches to problems in intimate coupling. Emphasis is placed on the assessment of the sources and patterns of dissatisfaction and conflict, the selection and ordering of treatment strategies, and application of treatment techniques consistent with determined goals.

**6312. GROUP DYNAMICS I AND SOCIAL WORK PRACTICE (3-0).** Examines contemporary social-psychological concepts and small group research, with a view to testing their applicability to practice propositions and operational principles, in work with both task and personality satisfaction groups.

**6313. GROUP METHODS IN COUNSELING II AND SOCIAL WORK PRACTICE (3-0).** Critical investigation of the therapeutic processes which are directed toward behavior change in persons through the structured medium of group interaction, and planful management, by the therapist, of group processes which emerge through interactional patterns between group members. Prerequisite: SOCW 6312.

**6316. OUT OF HOME CARE AND TREATMENT (3-0).** This course reviews current research and practice relevant to services provided to children and adolescents who reside in foster care, residential treatment, kinship care or psychiatric hospital settings.

**6317. DIRECT PRACTICE IN HEALTH CARE (3-0).** Explores central contribution of social work to comprehensive health care; social work interventions to assess and ameliorate the psychosocial effects of illness and disability are included along with emerging roles for social work in prevention and health maintenance.

**6318. DIRECT PRACTICE WITH AGING (3-0).** Course presents an overview of current issues in the care, treatment, and delivery of social services to the aging. Students learn practice procedures designed to equip them with the skills needed for effective social work practice and review major theories on aging.

**6325. ADVANCED MICRO PRACTICE (3-0).** Builds on the generalist perspective and the basic familiarity with social work processes (such as problem identification, assessment, contracting, plan implementation, and outcome evaluation) in the context of (1) existing psychotherapeutic modalities, and (2) the particular client characteristics that lend themselves to specific change modalities. Required of all DP students.



**6326. DIRECT PRACTICE WITH CHILDREN AND FAMILIES (3-0).** Focuses on the characteristics, strengths, and service needs of children and their families. Addresses assessment and intervention skills to work effectively with a variety of child, parent(s), and family problems. Specific techniques considered include child therapy, play therapy, behavioral contracting, cognitive-behavioral interventions, and crisis intervention. Required of all DP students specializing in Children and Families.

**6336. DIRECT PRACTICE IN MENTAL HEALTH (3-0).** Focuses on assessment and intervention with those evidencing acute and chronic mental health problems and disabilities. The course addresses the delivery of services to various populations (children, adolescents, and adults), service delivery systems (community mental health, managed behavioral health care), and a wide range of problems. Topics include well-being, ethics, case management, treatment planning, managed care, DSM, PIE, and substance abuse. Required of all DP students specializing in Mental Health.

**6343. VIOLENCE IN FAMILIES (3-0).** Addresses two areas: Models for effective treatment of violence-prone families and creation of legal and social service systems for treatment. Students undertake field research and learn procedures for conducting their own anger abatement training programs.

**6344. TREATMENT OF CHILDREN AND ADOLESCENTS (3-0).** Overview of the literature which describes physical, psychological, and cultural characteristics unique to childhood and adolescence. Attention then turned to treatment principles, and the specification of procedures for the amelioration of problems common to children and adolescents.

**6350. SEMINAR IN COGNITIVE-BEHAVIORAL INTERVENTION STRATEGIES (3-0).** Explores various covert conditioning, cognitive restructuring, and self-instruction therapies. Recent theoretical formulations and relevant research will be investigated as they pertain to the efficacy of cognitive intervention strategies with various clinical problems.

**6353. SEMINAR IN FAMILY THERAPY (3-0).** Comparison of various approaches to working with the family as a total system; enhancement of cognitive understanding of similarities and differences in theory and goals of family treatment in many fields of practice; integration of strategies and techniques of each method into an individual style of therapy.

**6358. SOCIAL WORK SUPERVISION (3-0).** Introduction to roles, functions, and contextual dimensions of social work supervision. Administrative and clinical perspectives are examined within contextual framework of social work supervisor as manager, mentor, mediator, and leader in the human service organization.

**6360. CLINICAL ASSESSMENT OF CHILD MALTREATMENT (3-0).** Examines knowledge/technique in child physical/emotional/sexual abuse, physical/emotional neglect, and exploitation interventions. Includes interviewing, identification, legal issues, assessment/evaluation, case management, intervention, follow-up.

**6361. STRESS, CRISIS, AND COPING (3-0).** The impact of specific crises on individuals and families will be examined. Typical crises will include life-threatening illness, trauma, physical and mental disability, and death. Assessment and evaluation of an individual's coping ability and appropriate strategies for social work interventions will be studied.

**6362. STRESS MANAGEMENT (3-0).** Stress management is a specialized area of clinical social work practice found in health, mental health, and occupational settings. Course content includes theory, assessment, and intervention methods.

**6368. SEXUAL ABUSE OF CHILDREN: IDENTIFICATION, ASSESSMENT, CASE MANAGEMENT AND TREATMENT (3-0).**

Seminar focused on examination of current knowledge and intervention strategies related to child sexual abuse. Topics addressed include techniques of obtaining information, sexual assault assessment procedures, validation, case management, application of change methods, case monitoring and relapse prevention.

**6369. INTRODUCTION TO HUMAN SEXUALITY AND SOCIAL WORK PRACTICE (3-0).** Overview of human sexuality as it relates to social work practice. Human sexuality considered from a bio-psychosocial perspective. Emphasis on viewing human sexuality as an interactive process of the total personality. Attention given to various psychological, social and behavioral educational/treatment approaches.

**6370. TREATING PARENT-CHILD RELATIONSHIPS (3-0).** Treatment strategies and evaluation methods and research findings relevant to the treatment of parent-child relationships; review of existing parent training literature and commercially available parenting programs.

**6380. TREATMENT OF ADDICTIVE BEHAVIORS (3-0).** Surveys major treatment alternatives, showing addictive behavior patterns such as alcohol/drug abuse or eating disorders. Student conducts field research of 12-step programs, practices interventions, and studies inpatient and outpatient treatment methods with emphasis on relapse prevention.

## Community and Administrative Practice

Students are required to take SOCW 5306 (Generalist Macro Practice) and, if they choose, a specialty in Community or Administrative Practice, SOCW 6371 (Community and Administrative Practice). Students who choose a specialty in administrative practice are required to take SOCW 6314 (Advanced Administrative Practice) and one additional course from those listed below. Students who choose a specialty in community practice are required to take SOCW 6315 (Advanced Community Practice) and one additional course. Students who choose a concentration in both administrative and community practice are required to take both SOCW 6314 and SOCW 6315 and one additional course from those listed below. SOCW 6371 must be taken before SOCW 6314 and SOCW 6315.

**5306. GENERALIST MACRO PRACTICE (3-0).** Examines generalist community and administrative practice roles, the perspectives of strengths, empowerment, and evidence-based practice along with the values of social justice, diversity, and participation. Specific attention is given to designing intervention programs that address community needs. Required of all except advanced standing students.

**6314. ADVANCED ADMINISTRATIVE PRACTICE (3-0).** Focuses on selected topics, issues, and skills for effective social work administration. Content includes leadership, worker motivation, resource development, interagency relations and managing conflict and diversity in a climate of scarce resources. Prerequisite: SOCW 6371.

**6315. ADVANCED COMMUNITY PRACTICE (3-0).** Focuses on topics, issues, and skills for mobilizing neighborhoods, communities, and client groups to solve collective human problems. Content includes the politics of empowerment, mobilizing coalitions, locating resources, and mediating conflict. Prerequisite: SOCW 6371.

**6339. PROGRAM EVALUATION (3-0).** Presumes basic research competence on part of student. Focus on sociopolitical aspects of program evaluation as a specialized use of scientific methods and community practice skills. Relationships between program evaluation and program planning or administration stressed.

**6355. ADVANCED USE OF INFORMATION TECHNOLOGY IN HUMAN SERVICES (3-0).** Provides the knowledge and skills to assess needs/capacities and develop technology-based solutions to

individual, group, family, administrative and community problems. Covers information systems, decision support systems, multimedia, human services software and Internet. Classes held in classroom and chat room, see <http://www2.uta.edu/cusssn/courses/6355/>. Prerequisite: SOCW 5319.

**6358. SOCIAL WORK SUPERVISION (3-0).** Introduction to roles, functions, and contextual dimensions of social work supervision. Administrative and clinical perspectives are examined within the contextual framework of the social work supervisor as manager, mentor, mediator, and leader in human service organizations.

**6363. BUDGETING AND FINANCIAL MANAGEMENT (3-0).** Basic overview of financial management applied specifically to human service agencies; emphases on basic concepts and skill building in budgeting, grant writing, and fund raising; accounting principles, financial statements, and computerized financial information systems also covered.

**6364. SOCIAL WORK IN HEALTH CARE SETTINGS (3-0).** An introductory course for those students interested in medical social work practice; health settings examined from organizational, administrative, and clinical perspectives to provide an understanding of intra/interdisciplinary practice in the health care system.

**6371. COMMUNITY AND ADMINISTRATIVE PRACTICE (3-0).** Surveys theory and builds skills in roles associated specifically with community practice (e.g. community/locality development, social planning, social action) and administrative practice (e.g. supervision, administration, management and management systems). Students complete an advanced assignment in community and/or organizational assessment and intervention and refine skills in making professional presentations. Required of all CAP students.

**6384. MANAGEMENT OF CHILDREN'S AGENCIES AND PROGRAMS (3-0).** Prepares students for mid-management and administrative roles in public and private child-serving agencies and programs. Includes content about the legal context of child welfare practice. Emphasis is on the community context of practice and how agencies can adapt their work to the cultural milieu of clients and others in the environment.

**6385. SOCIAL WORK AND MANAGED CARE (3-0).** Explores the history of managed care in health and social services, the underlying philosophy, and current trends and practice issues. Assesses the potential for conflict between social work values and managed care systems. Builds skills for administrative roles in managed care settings.

## Research and Evaluation

Students are required to take SOCW 5322 and SOCW 6324 (Research and Evaluation Methods in Social Work I and II). Thesis students are required to take SOCW 6393 (Thesis Research) and SOCW 6398 (Thesis). Non-Thesis students must take SOCW 6305 (Integrative Seminar) and one additional elective. Students must be enrolled in Integrative Seminar during their final semester.

**5319. TECHNOLOGY USE IN SOCIAL WORK PRACTICE (3-0).** Introduces basic computer concepts, spreadsheets, word processing, assessment and intervention software, graphics packages and statistical packages and their applications in social work. Required of all students. Graded P/F.

**5322. RESEARCH AND EVALUATION METHODS IN SOCIAL WORK I (3-0).** Introduction to the methods of scientific inquiry and their relevance to social work. Topics include problem formulation, single subject and group research design, elementary statistics such as chi squares, correlations, analyses of variance, and report writing. Required of all students.

**6324. RESEARCH AND EVALUATION METHODS IN SOCIAL WORK II (3-0).** Advanced course in the application of research principles and techniques. Topics include regression and statistical control, analysis of variance, questionnaire construction, evaluation research, and computerized tabulation and analysis of data. Mini-projects require the student to apply these techniques in the context of social work practice. Prerequisite: SOCW 5322. Required of all students.

**6393. THESIS RESEARCH.** Initial research in the student's area of concentration, leading to thesis. Graded P/F/R. Prerequisite for 6398.

**6395. APPLIED RESEARCH.** Individual or small group research project in the student's major area of concentration with emphasis on applying research principles and procedures. A substantial research report is due at the conclusion of the course. May be taken as an elective only. Graded P/F/R.

**6398. THESIS.** Requires an individual research project in the individual's area of concentration, with a minimum of six semester hours total needed for the project. Satisfactory completion requires approval of the instructor in charge, a supervising committee appointed by the Dean of Graduate Studies. Defense in a final oral examination is required. Graded P/F/R. Prerequisite: permission of Graduate Advisor and the instructor in charge.

## General

**6305. INTEGRATIVE SEMINAR (3-0).** Focuses on issues and aspects of practice of broad concern to the profession of social work. Faculty members serve as consultants and resource persons to seminar members. Required of all non-thesis students in their final semester of coursework. Grade of C or better must be earned in this seminar. Graded R.

**6329. SOCIAL WORK, LAW, AND THE FAMILY CODE (3-0).** Overview of legal principles and procedures as they apply to social workers and their interaction with clients. Particular attention given to the broad area of family law. Areas of mental health law, children's rights, consumerism, malpractice, courtroom testimony, criminal law, estates, and community legal services covered. This course is an elective only; does not meet the requirements for a second year policy course.

## Tutorials

**6190, 6290, 6390. TUTORIAL.** Arrangements may be made for a directed and supervised tutorial in a select area of special interest to the student. Prerequisite: permission of the Graduate Advisor. May be repeated for credit.

## Special Seminars

**6292, 6392. SELECTED TOPICS IN SOCIAL WELFARE.** Topics vary from semester to semester depending on the needs and interest of the students. Prerequisite: permission of Graduate Advisor. May be repeated for credit.

## Field Instruction

Field instruction is an essential component of professional education for social work practice. Its purpose is to provide adequate opportunity and support for the application of social work knowledge and skills gained by the student in the classroom and to acquaint students with the realities of practice in organizational settings.

Students are assigned to affiliated agencies where they are administratively responsible to an agency supervisor, the field

instructor. A campus professor or a community-based social worker acts as liaison and consultant to the agency field instructor and to the student in regard to the educational experience, to insure that classroom and field curricula are integrated.

Students are assigned to two different agency- or campus-based placements for field instruction and complete a total of 13 credit hours and 900 clock hours. First year students must complete 400 clock hours of generalist practice in one agency during one semester. Students should have completed at least 12 credit hours before enrolling for the first field placement. Students must complete foundation courses in Direct Practice, CAP, HBSE, and Policy prior to applying for first year field. Direct Practice II and Administration and Planning II must be taken either prior to or during the first field placement.

Second year students normally complete field instruction in two consecutive semesters at the same agency for a total of 500 clock hours in their method of concentration (250 clock hours each semester) and receive a total of 8 credit hours. Before enrolling for second year field instruction, a student must have completed all first year coursework and be taking a second year practice course with each semester of field instruction. Students may do second year field instruction in one semester (called a block placement) if approved by the Director of Field Instruction.

Field Placements cannot be provided totally at night and on weekends. Students must have flexibility in scheduling time for classes and field instruction. Students must meet the requirements of the field agency including but not limited to the days and times required for initial screening procedures, orientation, training, and supervision.

Students are permitted to do one of their field placements in an agency where they have been employed provided that the agency is affiliated with the School of Social Work for the provision of field instruction, that the agency has a qualified field instructor who is not the employment supervisor, and that the proposed educational experience is approved by the Director of Field Instruction. A proposal must be submitted to the Director of Field Instruction for review and approval.

### Out of Dallas/Fort Worth Metroplex Field Placements

The school affiliates with social service agencies in the Dallas/Fort Worth Metroplex for provision of both first and second year field instruction. Occasionally, other field placements are arranged outside the Metroplex dependent upon the resources of the school and at the discretion of the Director of Field Instruction. Placements that are arranged outside of the Metroplex for the sole benefit and convenience of students will require that actual expenses for site visits and liaison visits be reimbursed by the student in accordance with the official travel reimbursement guidelines of the State of Texas.

### Requirement for Liability Insurance

All social work students enrolling in field instruction courses will be assessed a fee in order to include them in the School's group professional liability insurance policy. Coverage is for \$250,000 limit each claim and \$500,000 limit aggregate.

The first field placement (SOCW 5551) is generalist. All students taking 5551 must concurrently enroll in Micro and Macro Practice Field Seminar (SOCW 5310).

**5310. MICRO AND MACRO PRACTICE FIELD SEMINAR (3-0).** Focused on the integration of social work knowledge, theory, and skills learned in the classroom with practical application in social work settings. Provides the opportunity for exchange of ideas, feelings, and

experiences relative to practice issues, professional growth and development, cultural diversity, the helping process, and social work values and ethics. Required of all students and must be taken concurrently with Applied Social Work Practice I (SOCW 5551).

The second field placement must be taken in the student's method of concentration. The number of field placements is not unlimited. Courses may sometimes be repeated for credit. Graded P/F/R only. **5151, 5251, 5351, 5551. APPLIED SOCIAL WORK PRACTICE I.** Graded P/F/R.

**6151, 6251, 6351, 6451, 6452, 6551, 6651, 6751, 6851, 6951. APPLIED SOCIAL WORK PRACTICE II.** Prerequisite: Applied Social Work Practice I. Graded P/F/R.

**6152, 6252, 6352, 6452, 6552, 6651, 6652, 6752, 6852, 6952. APPLIED SOCIAL WORK PRACTICE III.** Prerequisite: Applied Social Work Practice II. Graded P/F/R.

### Core Curriculum: Doctoral Program

The Ph.D. core curriculum provides an overview of relevant social science theories and emphasizes research methods and statistical procedures necessary for conducting research in the student's area of specialization. Courses that constitute the core curriculum are described below.

**6328. SOCIAL POLICY RESEARCH AND ANALYSIS (3-0).** Seminar examining methods for analyzing social policies and for assessing effects of policy. Students evaluate and apply different models for social policy analysis, including comparative models. Students work with social indicators and other data sources used in policy research. Prerequisites: SOCW 5322 and 6324 (or equivalents with permission of the instructor).

**6340. ADVANCED RESEARCH METHODS IN HUMAN SERVICES (3-0).** Acquaints students at an advanced level with research methodology as it applies to the human services. Includes techniques and tools of research, problem conceptualization, measurement, research and instrument design and data collection methods. Prerequisites: SOCW 5322 and 6324 or equivalent within the last five years.

**6341. ADVANCED STATISTICAL METHODS IN HUMAN SERVICES (3-0).** Advanced statistical applications in the human services. Emphasis on multivariate statistical approaches including multiple regression analysis, logistic regression, structural model analysis using LISREL or EQS. Prerequisite: SOCW 6347.

**6347. INTERMEDIATE STATISTICS (3-0).** Statistical applications for doctoral social work students. Emphasizes both parametric and non-parametric techniques, including t-tests, ANOVA, correlation and regression, chi-square, and other non-parametrics. Designed to provide a foundation for advanced multivariate statistical techniques. Prerequisite: SOCW 6324 or equivalent.

**6348. SEMINAR IN QUALITATIVE RESEARCH METHODS (3-0).** Explores a variety of qualitative approaches to knowledge building and research. Designed to prepare students to carry out research projects within their areas of interest. Content includes discussions of knowledge development, study designs, data collection, analysis, and report writing.

**6373. SCIENCE AND ADVANCED SOCIAL WORK PRACTICE (3-0).** Involves the study of the philosophy of science and an examination of the contributions and limitations of science in the shaping of social work practice; involves as well the identifications and considerations of other factors which have a systemic effect on the epistemology and technology of the profession.

### Other Required Ph.D. Courses

In addition to the core curriculum, Ph.D. students must take the following required courses.

**6356. SEMINAR IN PROGRAM AND PRACTICE EVALUATION (3-0).** This course provides hands on opportunities to develop program and clinical evaluation plans for social work/welfare agencies. Educational principles and theoretical foundations are discussed as the actual plans are developed. Students work with agency decision makers and the instructor to generate a plan acceptable to the agency for implementation.

**6367. SEMINAR IN ADVANCED STATISTICAL APPLICATIONS (3-0).** This seminar covers statistical analysis of experimental designs, the General Linear Model and other advanced statistics. The course focuses on applications of statistics using various data sets. Prerequisite: Knowledge of SPSS.

**6396. SOCIAL WORK EDUCATION: PRINCIPLES AND SKILLS (3-0).** Considers a range of ideas in educational thought relevant to the formulation of an analytical appraisal of social work education and training. Educational methods and skills relevant to social work are addressed and practice opportunities offered.

### Research Practicum

**6394, 6694, 6994. APPLIED RESEARCH PRACTICUM.** Students engage in an active program of applied research under direct supervision of a faculty member.

### Dissertation

**6399, 6699, 6999. DISSERTATION.** Preparation and submission of a doctoral dissertation in an area in social work. 6399 and 6699 graded R/F only; 6999 graded P/F/R. Prerequisite: admission to candidacy for the Ph.D. in social work.

### Ph.D. Elective Courses

**6372. THE INTERNATIONAL ENVIRONMENT OF SOCIAL WELFARE (3-0).** Students engage in critical thinking regarding global social welfare issues. It analyzes theories of causation and alternative models for national or international interventions.

**6383. COMPUTER-SUPPORTED PRACTICE (3-0).** Examines the data/information/knowledge basis of social work and the computer-based tools and techniques to support micro and macro practice. Tools examined include databases, spreadsheets, multimedia, expert systems, performance support systems, neural networks, and electronic networks. Prerequisite: SOCW 5319, or equivalent, or instructor's permission.

### Teaching Practicum

**6346. TEACHING PRACTICUM (3-0).** Introduces students to the academic role through teaching practice at graduate and/or undergraduate level supervised by a full-time faculty member.

# The School of Urban and Public Affairs

Dean: Richard L. Cole, Ph.D.

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## Mission and Philosophy

The mission of the School of Urban and Public Affairs is to conduct basic and applied research into urban problems and public policy, to provide services in support of public and nonprofit agencies, and to educate and train students for public service careers.

## History and Overview

SUPA was established in 1967 as the Institute of Urban Studies by an act of the Texas Legislature. The institute's mandate was to offer Texas city and county governments and other public agencies high-caliber, university-based research, training and other technical services. In 1990, after significant expansion of its staff and programs, the organization became the School of Urban and Public Affairs. The institute continues to operate as a vital part of the school.

SUPA is the state's only university-based center for applied research and service in urban affairs. It is called upon routinely to study and recommend solutions for problems confronting government agencies, nonprofit organizations and private industry.

During its more than 35 years of existence, SUPA has conducted hundreds of studies on such topics as transportation, housing, child care, public safety, corrections, education, human services and regional governance. Its reports are included in the collections of virtually every major library in Texas and have been adopted as texts at many colleges and universities.

Urban officials view the school, its institute and its Center for Economic Development Research and Service (CEDRAS) as a primary source of information and advice in such matters as computer applications in urban management, home rule charters, redistricting, inter-local contracting, economic development, personnel management, revenue administration, land appraisal, zoning and land-use issues.

SUPA is active in training local government officials and in consulting on service projects for governmental agencies worldwide. Urban professionals rely on SUPA for consultation and guidance in accomplishing such goals as urban revitalization, pollution control, conservation, and facility planning and siting.

Though much of its research is done in response to specific requests by particular entities, SUPA makes the results available through its publications to others who find themselves confronting similar situations.

SUPA uses the most advanced computer equipment, data collection and analysis techniques in conducting research, and its more than 20 faculty and staff draw upon their rich and diverse educational and cultural backgrounds.

One distinguishing feature of SUPA is its location in the heart of the Dallas-Fort Worth Metroplex, a rich urban laboratory of more than 150 cities with a total population of approximately 4.5 million. This complex urban arena offers a wide array of opportunities for student projects, internships and employment. SUPA faculty, staff and

students work on "real-life" urban and public affairs projects in cooperation with city governments, public agencies and nonprofit organizations through the school's institute, CEDRAS.

More than 800 students have earned graduate degrees at SUPA, and many hold key management positions in local governments, public agencies and nonprofit organizations nationwide. Currently, SUPA has a diverse student body of approximately 225 students. Many of these students also hold full- or part-time positions in government, private or nonprofit organizations.

## Accreditation

The School of Urban and Public Affairs is one of only approximately 20 in the country having both its Master of Public Administration and its Master of City and Regional Planning programs fully accredited by their respective accrediting agencies.

The Master of City and Regional Planning is accredited by the Planning Accreditation Board which requires graduate planning programs to meet high professional and academic standards. Students enrolled in accredited programs are eligible for certain national APA scholarships, and graduates of accredited programs may qualify for certification by the American Institute of Certified Planners after fewer years of experience than graduates of nonaccredited programs. Also, accreditation qualifies a CIRP program for representation on the board of the Educational Foundation of the Texas Chapter of the American Planning Association which provides annual scholarships and other benefits to students in accredited planning programs.

The Master of Public Administration degree is accredited by the National Association of Schools of Public Affairs and Administration which requires public administration programs to meet strict standards for faculty qualifications, curriculum content, admissions and program requirements, student composition and services, budget and facilities. Accreditation enhances the program's national recognition and will open doors and provide opportunities for students applying for Texas-based scholarships and nationwide positions.

SUPA was ranked as one of the best programs in the nation by *U.S. News & World Report* in 2002.

## Scholastic Activity and Research Interests of the Faculty

SUPA faculty are actively engaged in research and community service projects that benefit local jurisdictions, public and nonprofit agencies with expertise that is beyond the normal scope of their particular services and resources. Typical projects include revitalization studies for inner-city neighborhoods, development plans for central business districts, economic development strategies for municipalities, inter-local contracting studies, and assessments of service delivery alternatives in communities and school districts.

The broad range of faculty research interests primarily focuses on local issues and provides support for local officials and urban professionals, but it also includes basic research into urban problems and public policy that is published in national journals and used in university texts. Research topics include such urban affairs issues as urban theory, development, management, politics, social welfare policy, social service administration and minority relations; such planning issues as urban design, land use analysis, environmental planning, community service and development, focus group research and group facilitation; and such public administration issues as public management, intergovernmental relations, entrepreneurship in government, education and economic development.

Some of the most significant faculty accomplishments are publication of an in-depth study of privatization in public schools which was presented to then Texas Gov. George Bush and the Texas State Board of Education; supervision of a study of the Civic Center District in Dallas that will probably affect the development and future profile of that area; supervision of a study of a neighborhood in Dallas for the Dallas Neighborhood Renaissance Partnership program to ensure that the residents get the improvements they want and need; publication of a collection of essays on economic development strategies appropriate for Texas urban settings; a grant from the Economic Development Administration for a university center; completion of a study for Habitat for Humanity to be used in the revitalization of a Fort Worth inner-city neighborhood; preparation of two sets of manuals for the training of trainers of elected officials in Third World countries for the United Nations; supervision of an APA award-winning student project to help a local community with the development of a central business corridor; assistance to the Fort Worth City Council in reaching consensus on annual budget deliberations; and assistance in recent federal voting rights cases in Tennessee, Texas, Georgia and New Mexico.

## Programs

### Degree Programs

SUPA currently offers five programs of graduate-level study:

Ph.D. in Urban and Public Administration (p. 274)

Ph.D. in Urban Planning and Public Policy (p. 274)

Master of Arts in Urban Affairs (p. 271)

Master of City and Regional Planning (p. 279)

Master of Public Administration (p. 284)

SUPA participates in dual-degree programs with the schools of Architecture, Nursing and Social Work. It cooperates with the colleges of Engineering and Science in an interdisciplinary program leading to master's and doctoral degrees in environmental science and engineering.

### Certificate Programs

SUPA offers certificate programs (as listed below) designed to provide skills and proficiency in highly specialized areas. Students enrolled in graduate degree programs at U.T. Arlington as well as students not enrolled in graduate degree programs are eligible to apply for these certificate programs. Those desiring to enroll in a certificate program but who are not currently enrolled in a graduate program may do so by applying to U.T. Arlington as a special student. Upon completion of all requirements, a certificate of completion is awarded by the University. Information on all certificate programs can be found below.

Certificate in Urban Nonprofit Management (p. 286)

Certificate in Development Review (p. 281)

Certificate in Law and Public Policy (p. 272)

Certificate in Geographic Information Systems (p. 281)

Certificate in Urban Journalism (p. 272)

Certified Public Management Program (p. 286)

## Master of Arts in Urban Affairs

The Master of Arts degree in Urban Affairs focuses on policy issues and problems related to life in urban communities. Urban issues are complex and require the understanding and skill of many disciplines.

For this reason, the M.A. in Urban Affairs program is multidisciplinary, requiring students to study urban sociology, economics, and politics, as well as other fields related to urban living and urban spaces.

Broad and intensive graduate education in urban affairs can introduce graduates to a variety of rewarding and profitable careers. With the increased urbanization of Texas and the nation, new career opportunities, many of them recent in origin, are becoming available. The M.A. in Urban Affairs program prepares students for public service, managerial and administrative positions in local and regional government, non-profit- and private-sector consulting, and for other professional positions in development, social planning and urban journalism.

By educating young men and women for urban affairs careers, the program seeks to help provide society with the "brain power" it needs to deal with increasingly complex and urgent urban problems.

### Degree Requirements

The Master of Arts degree in Urban Affairs seeks to provide students with an understanding of cities in five general and interrelated areas of knowledge:

1. Urban Common Courses (nine hours)
2. Urban Institutions (six hours)
3. Urban Issues (nine hours)
4. Professional Development (six-nine hours)
5. Research and Analysis (nine-twelve hours)

A total of 39 to 45 hours is required for completion of the program, depending on the prior academic degree of the student, and prior professional experience.

In the Research and Analysis field, all students are required to take URPA 5343. Students then have the option of taking one or the other of these sequences:

- a. URPA 5341, Professional Report Writing, and URPA 5396, Project Report;
- b. URPA 5342, Strategies for Urban Research, and URPA 5397, Research Report.

A student may select URPA 5698, Thesis, in lieu of either URPA 5396, Project Report, or URPA 5397, Research Report.

### Professional Development Fields

Students can specialize in one of four professional development fields as described below. As an alternative, they can petition to substitute another professional field, such as criminal justice, social work, engineering or business administration.

**Urban Management:** The Urban Management field is designed for students interested in public service careers or other managerial or administrative staff positions, such as finance and personnel. Student selecting Urban Management must fulfill the requirements as specified above. Students pursuing the Urban Management professional field track with an interest in non-profit organizations may also elect to work toward a Certificate in Non-profit Management ([www.uta.edu/supa](http://www.uta.edu/supa)).

**Urban and Social Planning:** The Urban and Social Planning field is designed for students interested in planning careers in non-profit

## Programs in Urban Affairs (M.A.), Urban and Public Administration (Ph.D.) and Urban Planning and Public Policy (Ph.D.)

[www.uta.edu/supa](http://www.uta.edu/supa)

### Areas of Study and Degrees

#### Urban Affairs

M.A. (See below)

#### City and Regional Planning

M.C.R.P.

(See Interdepartmental and Intercampus Programs)

#### Public Administration

M.P.A.

(See Interdepartmental and Intercampus Programs)

### Master's Degree Plans

Thesis and Thesis Substitute

#### Public and Urban Administration

Ph.D. (See below)

#### Urban Planning and Public Policy

Ph. D. (See below)

### Dean

Richard L. Cole

512 University Hall, 817-272-3071

### Graduate Advisor of

#### Urban Affairs (M.A.)

Edith Barrett

530 University Hall, 817-272-3285

### Graduate Advisor of Ph.D. in

#### Urban and Public Administration

Rod Hissong

505 University Hall, 817-272-3350

### Graduate Advisor of Ph.D. in

#### Urban Planning and Public Policy

Enid Arvidson

513 University Hall, 817-272-3349

### Graduate Faculty

#### Professors

Anjomani, Cole, Cornehl, Goldsteen, Taebel, Wyman

#### Associate Professors

Arvidson, Barrett, Bright, Hissong, Li, Tees, Wegner

#### Assistant Professors

Guignard, Rodriguez, Stokes

and public agencies. Students selecting Urban and Social Planning must fulfill the requirements specified above.

**Urban Journalism:** The Urban Journalism field is designed for students who are interested in careers in the media with a specialization in urban and community affairs. Students selecting Urban Journalism must complete the course requirements specified above. In addition, students must take the Project Report sequence in the Research and Analysis field, but the course requirements are reduced from 12 to 9 hours because URPA 5341 is not required. Students are also required to take URPA 5391, Topics in Urban Policy; Urban Journalism. Students pursuing the Urban Journalism professional field track may also elect to work toward a Certificate in Urban Journalism ([www.uta.edu/supa](http://www.uta.edu/supa)).

**Environmental Policy and Planning:** The Environmental Policy and Planning Field is designed for students interested in careers in the public and private sectors which focus on environmental concerns. Students selecting Environmental Policy and Planning must complete the course requirements specified above. Courses in the professional field will be drawn from Civil Engineering, City and Regional Planning and other programs. (See appropriate departments for course listings.)

## Dual Degree Program

Students in Urban Affairs may participate in a dual degree program whereby they can earn a Master of Arts in Urban Affairs and a Master of Science in Social Work or Masters in City and Regional Planning, or a Masters in Public Administration. By participating in a dual degree program, students can apply a number of semester hours jointly to meet the requirements of both degrees, thus reducing the total number of hours which would be required to earn both degrees separately. The number of hours which may be jointly applied ranges from nine to 18 hours, subject to the approval of Graduate Advisors from both programs. To participate in the dual degree program, students must make separate application to each program and must submit a separate Program of Work for each degree. Those interested in the dual degree program should consult the appropriate Graduate Advisor(s) for further information on course requirements. See also the statement on "Dual Degree Programs" in the general admission section of this catalog.

## Certificate Programs

### Certificate in Urban Journalism

The Certificate in Urban Journalism program provides journalists and others who communicate with the public an in-depth understanding of the urban community, including the dynamics, processes and problems of urban America, especially in Texas.

Journalism today faces a serious dilemma: speed versus analysis. Speed is, in many cases, the objective of the media. But, except for the most mundane events, it fails to educate the listener or reader. Universities are at the opposite end of the spectrum. Speed is generally unimportant, but analysis is essential. Yet the university's communication with the general public is limited. The Certificate in Urban Journalism program seeks to bridge the gap. In order for a democratic society to work, the public must not only have information, but perspective. Perspective does not mean opinion or ideology. Perspective places today's events in a comparative and historical context. This certificate program is a step in that direction.

Students are required to complete 15 hours, composed of the following courses: SUPA 5300: Foundations of Urban Planning and

Sociology; SUPA 5301: Foundations of Urban Politics and Economics; SUPA 5302: Foundations of Urban Research and Analysis; URPA 5303: The Metroplex; and URPA 5391: Topics in Urban Policy: Urban Journalism.

Applicants should apply to UTA as special students. Certificate students who decide later to pursue one of the graduate programs in SUPA may have the certificate coursework applied toward a graduate degree, with approval by the appropriate graduate advisor.

### Certificate in Law and Public Policy

The Certificate in Law and Public Policy provides a basic grounding in the legal policy aspects of such areas as the environment, health, education, economics, social work, and urban and social policy.

Many fields of private and public service today are affected by the legal system and the maze of complex laws and regulations which govern the conduct of public agencies and private entities. An understanding of these legal dimensions and their impacts can be a valuable asset in the modern employment environment.

Additionally, students with an interest in entering law school can obtain a basic overview of the many dimensions of society affected by the law, and acquire a valuable head start in their pursuit of a law degree.

Students already enrolled in a graduate program at U.T. Arlington need only declare their intent to enroll in the Certificate Program by submitting the appropriate application form to the Law and Public Policy Graduate Advisor. Students who wish only to enroll in the Law and Public Policy program, but NOT in a graduate degree program may apply for admission to U.T. Arlington as a special student, or "non-degree seeking" student. An undergraduate degree and grade point average of 2.8 in the last 60 credit hours of baccalaureate studies are required.

Students must complete 15 credit hours, consisting of two required core courses and nine elective hours (3 courses) from an approved list with permission of the program advisor.

#### Core Courses (Required)

- URPA 5325. Urban and Administrative Law
- URPA 5363. Civil Rights and Urban Minorities

#### College of Business Administration

- BA 5330. Legal Environment of Business
- BA 5331. Law of International Business
- BA 5324. Real Property Law
- ECON 5305. Environmental Law and Policy
- MANA 5327. Human Resource Law

#### Education

- EDAD 5381. Political and Legal Aspects of Education

#### Political Science

- POLS 5355. Topics in Public Laws and Jurisprudence

#### Nursing

- NURS 5386. Health Law
- NURS 5387. The Law of Healthcare Malpractice

#### Social Work

- SOCW 6329. Social Work, Law, and the Family Code

#### Urban and Public Affairs

- CIRP 5353. Environmental Law
- CIRP 5316. Land Use Law



# Admissions Policy

## School of Urban and Public Affairs

### Admission and Fellowship Criteria

In considering applicants for admission to its master's and doctoral programs, the School of Urban and Public Affairs will be guided by a holistic approach based on a set of factors outlined below and calibrated to decisional criteria for admissions. The factors are set forth in Section A. The decisional criteria for master's programs are in Sections B1 and B2, and the decisional criteria for the doctoral programs are in Section C. Other types of decisions are in Section D, and Scholarship/Fellowship criteria are specified in Section E.

#### Section A: The factors considered in the admissions process are as follows:

1. Basic Factors:
  - a. For master's programs, the undergraduate Grade Point Average (GPA) based on the last 60 hours of coursework as calculated by the Graduate School. For the doctoral program, the GPA based on graduate coursework completed.
  - b. The Graduate Records Examination (GRE) based on the verbal and quantitative scores.
2. Determinative Factors:
  - a. Letters of Recommendation: Must demonstrate capability to complete program.
  - b. Personal Statement by Applicant: Based on quality, commitment and maturity.
  - c. Undergraduate field of study in the social sciences or related fields.
3. Enhancing Factors:
  - a. Community Service, especially volunteer service in disadvantaged areas and for disadvantaged people.
  - b. Multilingual proficiency.
  - c. First generation graduate student from family.
  - d. Work experience and level of responsibility.
  - e. Geographic diversity.

#### Section B1: Decisional Criteria for Admission to Master of Arts in Urban Affairs and the Master in Public Administration Programs

Level 1: Applicants with a GPA of 3.0 and above, a Verbal GRE score of at least 400, a Quantitative GRE score of at least 400, and combined Verbal and Quantitative score of at least 1,000 will be admitted unconditionally, except for international applicants who will also be required to have a score of 550 or higher on the TOEFL.

Level 2: Based on a majority of enhancing factors and all determinative factors, the Graduate Advisor will unconditionally admit applicants with a GPA of 3.0 and above and a Verbal GRE score of at least 400 and a Quantitative GRE score of at least 400, and combined Verbal and Quantitative score of 800-999.

Level 3: The Graduate Advisor may admit applicants with a GPA of less than 3.0 and/or a Verbal GRE score less than 400 and a Quantitative GRE score less than 400, and a combined Verbal and Quantitative GRE score of less than 1,000 on probation based on a majority of enhancing and determinative factors. The Graduate Advisor will set the probationary conditions.

Level 4: Applicants who do not meet the standards of Level 3 will be referred to the admissions committee for final adjudication. If admitted on probation, the committee will set probationary standards.

#### Section B2: Decisional Criteria for Admission to Master of City and Regional Planning Program

Level 1: Applicants with a GPA of 3.0 and above, a Verbal GRE score of at least 350, a Quantitative GRE score of at least 450, and combined Verbal and Quantitative score of at least 1,000 will be admitted unconditionally, except for international applicants who will also be required to have a score of 550 or higher on the TOEFL.

Level 2: Based on a majority of enhancing factors and all determinative factors, the Graduate Advisor will unconditionally admit applicants with a GPA of 3.0 and above and a Verbal GRE score of at least 350, a Quantitative GRE score of at least 450, and combined Verbal and Quantitative score of 800-999.

Level 3: The Graduate Advisor may admit applicants with a GPA of less than 3.0 and/or a Verbal GRE score less than 350, a Quantitative GRE score less than 450, and a combined Verbal and Quantitative GRE score of less than 1,000 on probation based on a majority of enhancing and determinative factors. The Graduate Advisor will set the probationary conditions.

Level 4: Applicants who do not meet the standards of Level 3 will be referred to the admissions committee for final adjudication. If admitted on probation, the committee will set probationary standards.

#### Section C: Decisional Criteria for Admission to Ph.D. Programs

Level 1: Applicants with a graduate GPA of 3.6, a Verbal GRE score of at least 500 and a Quantitative GRE score of at least 500 will be admitted unconditionally, except for international applicants who will also be required to have a score of 550 or higher on the TOEFL.

Level 2: The Graduate Advisor will unconditionally admit applicants with a GPA above 3.7, only one of the Verbal or Quantitative scores greater than 500, and a combined GRE score of between 900 and 999.

Level 3: The Graduate Advisor may admit applicants with a GPA of less than 3.6, a Verbal GRE score of less than 500 and a Quantitative GRE score of less than 500 on probation, based on a majority of enhancing and determinative factors. The Graduate Advisor will set the probationary conditions.

Level 4: Applicants who do not meet the standards of Level 3 will be referred to the admissions committee for final adjudication. If admitted on probation, the committee will set any probationary standards.

#### Section D: Other Types of Admission

1. Deferred: A deferred decision may be granted when a field is incomplete or when a denied decision is not appropriate.

2. Provisional: An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

#### Section E: Scholarship/Fellowship Criteria

1. Graduate students with a GPA of 3.0 or better who are enrolled in six hours or more are eligible to apply for competitive scholarships and fellowships.

2. Scholarships and fellowships will be awarded by considering all of the factors in Section A, above.

## Ph.D. in Urban and Public Administration

The Ph.D. Program in Urban and Public Administration is based on a unique interdisciplinary approach in preparing students for a variety of academic and senior public management positions.

Students in the program are required to take two core fields of study and two support fields of study. One of the core fields of study is urban administration and the other is public policy. One support field of study is research and the other is chosen from the list below.

For the purpose of developing academic support among Ph.D. students, new Ph.D. students are admitted only at the beginning of the fall semester. The deadline to apply for admission for the following fall semester is March 31.

### Program

**Core fields:** Students generally take 18 hours of coursework in each of the two core fields of study. Appropriate courses in the public administration field are listed below under "Urban Management" and also in the Public Administration section of this catalog under the heading of "Administrative Theory, Practices and Processes." Appropriate courses in the urban policy field are listed below under "Urban Institutions" and under "Urban Issues." Courses from other programs, including social work, city and regional planning, criminal justice, and education may also be applied to the core fields, if appropriate.

**Support Fields:** Students generally take 15 hours of coursework in the Research support field. Research is a required support field. Students complete a sequence of courses concerning theory and theory construction, evaluation research design, and quantitative and qualitative research methods. At least one course of the sequence is offered each regular semester to ensure the students make steady progress. A proficiency examination is also required in this field of study by all students.

Students generally complete 9 hours of coursework in their second support field. Students can select the other support field from among the following:

**Professional Fields:** City and Regional Planning, Criminal Justice, Social Work, Education, Nursing

**Disciplinary Fields:** Political Science, Sociology, Economics, History

Courses drawn from either the professional or disciplinary fields should be related to the overall objective of the program. To assist students in selecting courses, many courses in the urban and public affairs inventory have been cross-listed with the courses in the above fields. A student may also petition to have some other field of study substitute for one of those listed above.

## Ph.D. in Urban Planning and Public Policy

The Ph.D. Program in Urban Planning and Public Policy integrates the academic disciplines of urban planning and public policy, preparing doctoral students for careers in university teaching and research, and for a variety of senior public or non-profit sector positions. Through training in both policy and planning curricula, students gain a unique and complementary understanding of these areas.

Students in the program are required to take two core fields of study and two support fields of study. One of the core fields of study is urban planning and the other is public policy. One support field of study is research and the other is determined through consultation with faculty advisors.

For the purpose of developing academic support among Ph.D. students, new Ph.D. students are admitted only at the beginning of the fall semester. The deadline to apply for admission for the following fall semester is March 31.

### Program

**Core fields:** Students generally take 18 hours of coursework in each of the two core fields of study. Appropriate courses in the urban planning field are listed below under "Urban Planning Core Field Courses" (for course descriptions, see the City and Regional Planning section of this catalog). Appropriate courses in the public policy field are listed below under "Urban Institutions" and under "Urban Issues." Courses from other programs, such as social work, political science, sociology, architecture, business, may be substituted for core field courses if appropriate.

#### Urban Planning Core Field Courses (18 hours)

##### Required:

CIRP 5303 Planning History and Theory

CIRP 5310 Urban Structure and Planning

##### Choose one of the following:

CIRP 5304 Plan Implementation

CIRP 5316 Land Use Law

##### Choose one of the following:

CIRP 5305 Land Use Management and Development

CIRP 5345 Planning and Real Estate

##### Choose one of the following:

CIRP 5311 Elements of Urban Design

CIRP 5350 Environmental Planning

##### Choose one of the following:

CIRP 5306 Urban Redevelopment

CIRP 5322 Economic Development

Depending on the background of the student, other courses may be substituted for the above.

**Support Fields:** Students generally take 15 hours of coursework in the Research support field. Research is a required support field. Students complete a sequence of courses concerning theory and theory construction, evaluation research design, and quantitative and qualitative research methods. At least one course of the sequence is offered each regular semester to ensure the students make steady progress. A proficiency examination is also required in this field of study by all students.

Students generally complete 9 hours of coursework in a specialized support field related to the overall objective of the program, with specific courses determined through consultation with faculty advisors.

### Examinations (Applicable to both Ph.D. programs)

**Diagnostic Examination:** A diagnostic examination will be taken by each student after completing 12 hours of coursework. The examination will evaluate the student's progress in the program, and, if the faculty recommends continuation, the tentative program of work will be established.

**Research Proficiency Examination:** All students are required to pass a proficiency examination in research.

**Written Comprehensive Examinations:** Students must successfully pass a written comprehensive examination in each of the core fields during or after the semester in which they complete coursework in the field. The examinations can be taken over a two-semester period.

**Oral Examination:** Students who successfully pass their written comprehensive examinations and proficiency examination, sit for an oral examination.

## Dissertation

Students who pass their oral examination are elevated to candidacy for the Ph.D. and may register for the dissertation. The dissertation is the culmination of the Ph.D. program and represents a distinct contribution to the field of knowledge. A dissertation defense is required.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Urban Common Courses (SUPA)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5300. FOUNDATIONS OF URBAN PLANNING AND SOCIOLOGY (3-0).** How urban communities develop as human settlements, their life cycles, expansion, and decay. Special consideration is given to social policy. Topics such as poverty, race, neighborhoods, and environment.

**5301. FOUNDATIONS OF URBAN POLITICS AND ECONOMICS (3-0).** Examines the major political and economic institutions and processes in urban communities and their effect on urban policy.

**5302. FOUNDATIONS OF URBAN RESEARCH AND ANALYSIS (3-0).** An introduction to research methodologies, both quantitative and qualitative, and statistical techniques useful in the analysis of urban trends, planning projects and administrative programs.

## Urban and Public Affairs (URPA)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

### Urban Institutions

**5303. THE METROPLEX: SURVEY OF URBAN AFFAIRS, PLANNING, ADMINISTRATION: (3-0).** The Metroplex provides an ideal laboratory for study with more than 100 cities and other governmental units, thousands of neighborhoods and business enterprises, major concentration of minorities and dozens of ethnic groups. An in-depth orientation on urban dynamics utilizing senior faculty members, governmental and community leaders, and current research reports and studies.

**5304. URBAN POLITICS (3-0).** Examination of the city as a political system, including the impact of urbanization and fragmentation on policies; input dimensions, including voting patterns and interest group development; decision-making structures, especially types of community power structures and the impact of the reform movement on structural processes. Also offered as POLS 5305; credit will be granted only once.

**5305. THEORIES OF URBAN SOCIETY (3-0).** Several theoretical perspectives of the community and community organization examined. Special emphasis given to theories from human ecology, organization and stratification, and social welfare.

**5306. THE URBAN ECONOMY (3-0).** Internal dynamics of the growth and development of the urban system and its relation to the national economy. National and urban economic policy, urban growth and land use, market imperfections, urban financial issues, and the environmental implications of urban growth studied through lecture, game simulation and policy debates.

**5307. URBAN GEOGRAPHY (3-0).** Emphasizes areal aspects associated with urban physical environments and social, behavioral and financial processes that shape these environments.

**5308. URBAN HISTORY (3-0).** Extensive reading primarily in the history of the urbanization and metropolitanization of the people of the United States. Historical methods as exemplified in the works of leading historians analyzed; examples of the scholarship of selected historians and treatises on selected cities, regions, and urban institutions studied. Also offered as HIST 5303; credit will be granted only once.

**5309. INTERGOVERNMENTAL RELATIONS (3-0).** Critical analysis of the implications of federalism, and the changing nature of intergovernmental relations on state and local management, administration, planning, and policy making.

**5390. TOPICS IN URBAN THEORY (3-0).** Different topics explored on an intensive basis, especially recent theoretical approaches. May be repeated for credit as topic changes.

### Urban Issues

**5310. URBAN POLICY AND THE LAW (3-0).** Critical analysis of federal government and selected state and local government policies and programs designed to influence the course of change and the future development of cities and urban areas. The role of "private" governments in affecting policy explored.

**5311. SOCIAL POLICY FORMATION (3-0).** Utilization of a sociological approach in the study of policy formation in such areas as aging, social planning, and community problem solving.

**5312. ECONOMIC POLICY (3-0).** Examines structure of the U.S. economic system and its impact on welfare of consumers, workers, and industry; public policy efforts to provide for management of critical economic variables are evaluated for effectiveness and equity as they impact different interest groups.

**5313. COMMUNITY DEVELOPMENT (3-0).** Focuses on problems of neighborhood development and revitalization. Decline of economic opportunity in central cities and deterioration of housing and neighborhoods analyzed. Federal, state and local policies, with grass roots initiatives evaluated for effectiveness in promoting community stability. Also offered as CIRP 5306.

**5314. HEALTH POLICY (3-0).** Current health policy and programs, examination of historical development, economic and legal aspects, interest groups and health constituencies.

**5315. URBAN EDUCATION POLICY (3-0).** Examines current education policy and programs, including public school districts, charter schools, and vouchers; economic and political aspects; role of adult education programs in improving human capital.

**5316. HUMAN SERVICES (3-0).** Social welfare institutions—private and public; needs assessment, resource allocation, procedures, city/state/federal/private policy review; highlights of current system demands and changes.

**5317. URBAN ENVIRONMENTAL POLICY (3-0).** Focuses on the physical environmental dimensions of urbanization including such factors as pollution, waste disposal, and land use; stresses the role of economics, social, and political institutions as these affect environmental quality. Policy alternatives for dealing with urban environmental problems. Also offered as CIRP 5342.

**5318. SOCIAL WELFARE POLICY (3-0).** Examines recent welfare reform measures (federal, state, and local levels), the political issues behind them, and their influence on urban life. A central topic will be the impact of a changing society on social welfare policy needs, including analyses of labor force participation and family structure.

**5319. URBAN PROBLEMS (3-0).** Specific urban problems examined in depth, traced to their historical origins to see how they or similar problems have been dealt with in other times and places. Students will then propose possible solutions to the problems in their contemporary form. Also offered as CIRP 5347.

**5362. URBAN DIVERSITY (3-0).** Examines the growing spatial and social diversity of cities; how physical as well as socioeconomic urban structures have fostered race, class, and gender inequalities; how urban policies have dealt with these inequalities; and what can be done to address these problems and the needs of traditionally disempowered groups. Also offered as CIRP 5362.

**5363. CIVIL RIGHTS AND URBAN MINORITIES (3-0).** Examines the changes in and growth of the civil rights of minorities in the United States from the close of the Civil War to the present. This is accomplished through the study of court decisions, legislation, and the civil rights movement in the 1950s and 1960s, as seen through the eyes of contemporary writers, including William Faulkner, Alice Walker, and Alex Haley.

**5364. INSTITUTIONAL AND OTHER RADICAL ECONOMIC THEORIES (3-0).** Examines the theoretical bases of institutional and other radical paradigms of the economic process and the alternative economic policies that logically flow from them. These are compared to and contrasted with the orthodox, or neo-classical, theoretical model of economics, and the economic policies that logically are derived from it. Emphasis will be on how and why the neo-classical model

remains the dominant model for economic policy in Western, capitalist countries.

**5391. TOPICS IN URBAN POLICY (3-0).** Different topics and approaches in analysis of urban problems. May be repeated for credit as topic changes.

Other courses appropriate for the "Urban Issues" area include CIRP 5354, Housing Policies, Programs and History; CIRP 5315, Transportation Policies, Programs and History; and CIRP 5313, Urban Growth Policies.

## Professional Development

### Urban Management

**5320. PUBLIC ORGANIZATION THEORY (3-0).** Historical evolution of administrative theory including classical, sociological and social-psychological dimensions; decision-making theory; implications of public interest theory for public management; basic concepts of organization development and impact on public administration paradigms; new public administration; and future of public urban organization. Also offered as CRCJ 5309 and POLS 5303; credit will be granted only once.

**5321. URBAN MANAGEMENT (3-0).** Focuses through lectures, readings, and exercises on major administrative process: personnel and policy development and analysis; management styles and key contemporary management problems explored through presentations by prominent local practitioners.

**5322. POLITICS, POLICY AND PUBLIC ADMINISTRATION (3-0).** Development of theory of bureaucracy; bureaucracy as social issue; ethics and morality in public bureaucracy; mobilization of special interest support; power differentials in urban agencies; policy process in bureaucracy; new bureaucratic structures and processes for urban policy making.

**5323. PUBLIC ORGANIZATIONAL CHANGE (3-0).** Current theories and concepts of public organizational change with particular emphasis on organization development and action research; theoretical roots of contemporary change literature traced through readings and discussion of classical organization theory, public administration including New Public Administration decision making, public interest, phenomenology, learning theory and general systems. Prerequisite: basic organization theory course or permission of instructor.

**5324. URBAN PUBLIC FINANCE (3-0).** Tax, revenue, and fiscal problems of cities and local governments in metropolitan areas; problems of matching costs and benefits in providing public services among different local governments; increasingly complex dimensions of intergovernmental fiscal relations and public budgeting systems.

**5325. ADMINISTRATIVE LAW (3-0).** Examines scope and role of administrative regulation of and by governmental agencies; explores constitutional principles which limit administrative power and administrative law which governs classical areas of conflict between administrative agencies and their constituencies; rule-making, judicial review and informal regulatory processes of importance to public officials.

**5326. PUBLIC BUDGETING (3-0).** Rationale of public budgeting including legal, political, social, and administrative perspectives; history of budgeting techniques and such approaches as Management by Objectives, and Program and Mission Budgeting. Also offered as CIRP 5328.

**5327. COMPARATIVE ADMINISTRATION AND POLICY (3-0).** Extensive, multidisciplinary exposure to concepts and models of

administration in developed and modernizing countries; role of the military, bureaucracy and traditional elites in development; practices and concepts of strategies for effective change. Also offered as CIRP 5307.

**5328. SMALL CITY MANAGEMENT (3-0).** This course will focus on problems peculiar to small cities, including administrative law; personnel, planning; public works, public safety; human services; budget and finance; public relations and parks and recreation. Also offered as CIRP 5307.

**5329. FINANCIAL MANAGEMENT IN THE PUBLIC AND NON-PROFIT SECTORS (3-0).** Overview of the principles of finance as they apply to the public and non-profit sectors, financial reporting for state and local governments and non-profit organizations and evaluation.

**5350. PRINCIPLES OF PUBLIC ADMINISTRATION (3-0).** The discipline and professional nature of public administration, trends and major issues, career planning for public service, and major sources of information for professional research.

**5351. HUMAN RESOURCES (3-0).** Structure, role, and evolution of the Civil Service, current personnel policies, formal tasks e.g. examination, recruitment, position classification, and collective bargaining.

**5352. PERSONNEL MANAGEMENT AND CONFLICT RESOLUTION IN THE PUBLIC SECTOR (3-0).** Labor management at all levels of government, ability to work together to solve problems. Emphasis on collective and interest based bargaining, mediation, labor management partnership. Simulation exercises teach dynamics of bargaining, negotiation, problem solving, and small group dynamics.

**5353. URBAN GOVERNMENT REFORM AND INNOVATION (3-0).** Designed to acquaint students with urban governance reform and innovation. Course will explore how reformed government differs from traditional bureaucracy by contrasting it with entrepreneurial government and other innovations. Examines some of the areas most in need of reform, including service delivery, organizational capacity, and fiscal decentralization.

**5354. MANAGEMENT OF NON-PROFIT ORGANIZATIONS (3-0).** This course examines the different management areas and techniques within the nonprofit organization such as institutional management, leadership and management and the differences between them, fund-raising and financial administration, human resources—staff, volunteer, and board—coordination, internal needs assessment, planning, performance measurements, and the organizational environment and culture.

**5355. NON-PROFIT INSTITUTIONS (3-0).** This course examines non-profits as community institutions with an outward focus: the political, economic, and inter-organizational environment, fund-raising and financial management, community relations and needs assessment, the role of the volunteers, boards and community leaders, marketing, and legal and government issues.

**5356. PUBLIC ENTREPRENEURIAL MANAGEMENT (3-0).** Public entrepreneurship involves the use of public powers, and partnerships with individuals, firms and other organizations, to achieve public purposes. The focus will be on creative management techniques and methods employed in managing the public sector.

**5357. STRATEGIC PLANNING AND MANAGEMENT (3-0).** Readings and case studies of strategic planning and management in the public and non-profit sectors; application of principles to an actual situation, involving stakeholder identification, environmental

scanning, and formulation of mission statements, goals and strategies. May also be taken as CIRP 5312.

**5392. TOPICS IN URBAN MANAGEMENT (3-0).** Selected topics on current management problems including small city management, community-neighborhood relations, citizen involvement programs and techniques, personal and professional effectiveness as a total person, intergovernmental strategies and styles, public-private sector collaboration and co-planning, privatization, and other alternatives to economic service delivery. May be repeated as topic changes.

### Urban and Social Planning

**5330. COMMUNITY AND NEIGHBORHOOD ORGANIZATION (3-0).** Structure and processes in the analysis and development of community and neighborhood organizations; special emphasis given to poverty and minority communities and neighborhoods.

**5331. LAND USE PLANNING AND THE LAW (3-0).** Examines the relationship between land use in urban areas and the legal system; covers traditional land use planning tools of zoning, subdivision regulation, and the special permit system; assessment of some of the more exotic, modern tools for managing urban growth for their legality and scope as interpreted by the judicial system. Also offered as CIRP 5316. Credit will be granted only once.

**5332. CAPITAL BUDGETING (3-0).** Examines governmental capital budgeting processes with a focus on apprehending the significance of capital improvement planning, public facility investment, and project evaluation to sound infrastructure financing and regional economic growth. Governments purchase or construct long-lasting physical assets or facilities financed mostly through borrowing. This course aims to understand the rationale for public capital budgeting and debt instruments used to finance capital investment in the political context of public budgeting in America.

**5393. TOPICS IN URBAN PLANNING (3-0).** Focuses on selected areas in urban and social planning. May be repeated for credit as topic changes.

Other courses for the Urban and Social Planning professional field may be taken from the City and Regional Planning program with the consent of the graduate advisor.

### Research and Analysis

**5341. PROFESSIONAL REPORT WRITING (3-0).** Provides students entering public sector employment with writing, management information, data retrieval skills to communicate ideas and information within and outside an agency; basic writing skills reviewed, including organization of reports and grammatical construction; assignments based on actual internship position of students in public agencies.

**5342. STRATEGIES FOR URBAN RESEARCH (3-0).** Intermediate level examination of statistical and research techniques appropriate to urban and social analysis. Special attention paid to use of micro computers in social science research. Prerequisite: URPA 5302.

**5343. APPLIED URBAN ANALYSIS (3-0).** Group and individual projects to develop research studies or strategies, data reports for local government, agency or citizen group; techniques appropriate to task utilized. P/F only.

**5344. QUALITATIVE ANALYSIS (3-0).** Explores different theories of knowledge, including how knowledge is created and how it is distinguished from pseudo-knowledge. Examines various techniques of qualitative research, stressing relevancy for planners and policy-makers. Also offered as CIRP 5346.

**5345. EVALUATION RESEARCH (3-0).** Methodological issues in evaluating public programs; identification of variables, indicators and analyses formats presented. Prerequisite: URPA 5302.

**5347. DEMOGRAPHIC METHODS (3-0).** Examination of sources of data-census, vital statistics, special surveys, reports, special studies; techniques of analysis with particular emphasis on growth and projection models, interpretation of findings as a major policy area in urban analysis.

**5348. COST BENEFIT ANALYSIS (3-0).** Reviews theory of cost-benefit and cost-effective analyses; explores the research, measurement and methodological requirements for the assessments of costs and benefits. It is recommended that students have completed at least one graduate course in research and one graduate class in public finance.

**5394. SPECIAL TOPICS IN URBAN RESEARCH (3-0).** Different topics each semester concentrate on a variety of methodological techniques and research strategies, such as demographic research and survey techniques. May be repeated for credit as topic changes.

**5395. CONFERENCE COURSE IN URBAN AFFAIRS (3-0).** Reading and research in a specialized area of urban affairs under the direction of a member of the graduate faculty.

**5396. PROJECT REPORT (3-0).** Student prepares report focusing on specific policy or professional issue, utilizing appropriate research techniques; subject area and design of project report with consent of instructor. Graded P/F/R only. Prerequisite: URPA 5341.

**5397. RESEARCH REPORT (3-0).** Student prepares report comparable to a journal article focusing on research issue, utilizing appropriate theory and research techniques; subject area and design of research report with consent of instructor. Graded P/F/R only. Prerequisite: URPA 5342.

**5398, 5698. THESIS.** A thesis conforming to University and departmental requirements may be prepared by graduate students in urban affairs. Graded P/F/R.

### Professional Field Experience and Administrative Practices

**5360. URBAN MANAGEMENT/PLANNING INTERNSHIP (3-0).** Designed to integrate work experience and coursework through a series of brief work-related assignments; presentations by local planning and management practitioners and class discussions and exercises. Enrollment is open to both pre-entry and in-career students. Formal internship placements with agency mentors will be arranged. P/F only.

### Ph.D. Level Courses

**6301. THEORETICAL FOUNDATIONS OF URBAN AFFAIRS (3-0).** Explores the development and function of theoretical models in urban affairs. It examines the major theories from the social sciences designed for framing urban issues and public policy.

**6305. SEMINAR IN URBAN POLICY PROCESSES (3-0).** Final course in urban policy field; focus on the political, economic, and sociological institutions in the policy process, including various theoretical approaches, and application of these multidisciplinary perspectives in the analysis of specific policy issues.

**6306. SEMINAR IN PUBLIC ADMINISTRATION (3-0).** Final course in the public administration field, focuses on review and integration of the theories and principles of public administration.

**6310. MONETARY AND FISCAL POLICY: THE FEDERAL ROLE (3-0).** Examination of the role of the federal government in maintaining economic stability, ensuring full employment and controlling inflation; exploration of liberal interventionist, conservative and radical theories of state economic management to assess the various policy alternatives and the importance of interest groups.

**6340. RESEARCH DESIGN (3-0).** Advanced course especially for Ph.D. students; covers logic of research design and problems of structure. Emphasis on empirical and quantitative studies.

**6346. ADVANCED DATA ANALYSIS (3-0).** Issues addressed include problems presented by cross-section data, time-series data and panel data. Methodologies include ordinary least squares, two-stage least squares, logit-probit analysis, path analysis and factor analysis. Also offered as CIRP 6346. Credit will be given only once.

### Public and Urban Administration (PUAD)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**6399, 6699, 6999. DISSERTATION.** 6399 and 6699 graded R/F only; 6999 graded P/F/R.

## Mission

The mission of the PAB-accredited master's degree program in City and Regional Planning (CIRP) is to prepare students for successful careers as professional planning practitioners in responsible positions with public, private and nonprofit organizations; to conduct basic and applied research into community planning and development issues, problems and opportunities, and publish the results thereof; and to deliver planning-related training and services to enhance the effectiveness of public, non-profit and private organizations.

## Program Philosophy

In this program, graduate students study the scope and issues as well as the interdisciplinary relationships involved in city and regional planning. The program equips students with an understanding of the dynamics of change, knowledge of problem solving techniques, planning theory and concepts, plan implementation methods, and design controls. Students acquire practical skills in empirical research and analysis, communications and computer applications, and evaluation of the implications of alternative solutions.

**Practical Application:** An important aspect of the planning curriculum—the practical application of theory and research—is facilitated by research activities and centers within the School and University. Research centers are equipped to investigate planning problems and opportunities with staff recruited from the faculty and student body. These centers, which allow students to exercise professional responsibilities in collaborative endeavors, include: Center for Economic Development Research and Service; Center for Criminal Justice Research and Training; and Environmental Research and Design Center.

The application of planning theory, knowledge and skills to “real world” planning problems in the Dallas/Fort Worth Metroplex gives students practical experience and field orientation to the profession of planning in a variety of planning subject areas.

**Unique Planning Emphasis and Specialization:** Since students' interests and academic backgrounds will vary, the MCRP Program encourages them to select emphasis areas that fit their own personal needs and goals. They may choose an emphasis in any area, subject to approval by the Graduate Advisor.

Curricular requirements of substantive planning coursework, analytical methods, areas of emphasis and specialization, and practical experience combine to provide the skills needed for guiding development of the future city, region, and nation.

## Degree Requirements

A 48 credit hour program is composed of:

- 21 hours of required core courses
- 12 hours of emphasis area courses
- 9 hours of electives
- 6 hours of thesis or thesis substitute (professional report or comprehensive exam), which includes either six hours for the thesis, or one to three hours plus a second project planning course for the thesis substitute.

A degree plan (listed with emphasis area classification) must be submitted to the Graduate Advisor, and will be placed in the student's file. Each student must see the Graduate Advisor before the end of the first semester of study to discuss and emphasis area and to complete a degree plan.

## Program in City and Regional Planning

[www.uta.edu/supa](http://www.uta.edu/supa)

Area of Study and Degree  
City and Regional Planning  
M.C.R.P.

Master's Degree Plans  
Thesis and Thesis Substitute

Graduate Advisor  
Elise M. Bright  
549 University Hall, 817-272-3338

Program Graduate Faculty  
Professors  
Anjomani, Bright, Cornells, Goldsteen

Associate Professors  
Arvidson, Li, Wegner

Interdisciplinary Graduate Faculty  
Professors  
Cole, Taebel, Wyman

Associate Professors  
Barrett, Hisson, Tees

Assistant Professors  
Guignard, Rodriguez, Stokes

And graduate faculty representatives from  
Architecture, Landscape Architecture,  
Sociology, Civil Engineering, Geology,  
Economics, and Finance and Real Estate.

Fax: 817-272-5008  
E-mail: [lgordon@uta.edu](mailto:lgordon@uta.edu)  
Program in City and Regional Planning,  
UTA Box 19588, Arlington, TX 76019-0588

## Core Courses

- CIRP 5303 Planning History and Theory
- CIRP 5310 Urban Structure, Policy and Planning
- CIRP 5304 Plan and Policy Implementation; or CIRP 5305 Land Use, Management and Development
- CIRP 5318 Techniques of Planning and Administrative Analysis
- \*CIRP 5332/5333 Project Planning
- \*\*SUPA 5300 Foundations of Urban Planning and Sociology, and/or
- \*\*SUPA 5301 Foundations of Urban Politics and Economics, and/or
- \*\*SUPA 5302 Foundations of Urban Research and Analysis

\*Non-thesis students must repeat this course once for credit. Substitutions of an elective for the repeat project planning requirement may be granted by the Graduate Advisor.

\*\*Students should consult with the Graduate Advisor in their first semester of study to determine appropriate courses.

## Emphasis Area Courses

Any combination of courses developed by the student with advice and counsel from an appropriate faculty member may, with approval of the graduate advisor, constitute an emphasis area. For example, a student wishing to emphasize international planning, regional planning, social planning, historic preservation, urban design or comprehensive planning should work with the Graduate Advisor to develop a course block that reflects this emphasis.

Model sets of courses have been developed for the most sought-after emphasis areas, and are available from the Graduate Advisor for the following areas:

- Analytic Methods and Skills
- Community and Economic Development
- Environmental Planning, Policy, and Management
- Physical Planning
- Planning Process, Policy, and Administration
- Transportation

An example of the emphasis area of physical planning is given below to serve as an example of what constitutes an emphasis area course grouping.

**Physical Planning** (urban design, land use planning and administration, land development)

Each student in this emphasis would take 5304 Plan and Policy Implementation, or 5305 Land Use Management and Development (whichever one was not taken as the student's core course selection). Select your remaining three courses from these:

- 5311 Elements of Urban Design
- 5313 Urban Growth Policies
- 5316 Land Use Law
- 5317 Intermediate Data Analysis
- 5340 Suitability Analysis
- 5345 Planning and Real Estate Development
- 5356 Introduction to Geographic Information Systems
- 5364 Economic Base and Industrial Development

## Thesis or Thesis Substitute

The thesis option, which requires six credit hours, is designed for those students interested in pursuing a career in research or private consulting, or who intend to obtain another advanced degree. Thesis

students will develop a research question that can be tested and examined via extensive and thorough library research, possibly supplemented by field work. Students interested in pursuing a thesis should consult with the graduate school regarding preparation requirements and deadlines. The thesis substitute involves either preparing a professional report on a real-world issue or project (3 credit hours), or taking a comprehensive examination (1 credit hour).

Students selecting the thesis or professional report must select a topic that falls within their emphasis area. They should consult with one of the emphasis area advisors before beginning their work to see whether he or she will serve as chair of the student's thesis or report committee, and to obtain guidance regarding a topic.

Students selecting the comprehensive exam should register for CIRP 5193 and should meet regularly with the faculty member in charge of the course, so that they can adequately prepare for the exam during the semester. The exam may be oral and/or written, at the discretion of the faculty member in charge. It will cover material related to the required core, the emphasis area, and any other material which the faculty believes is relevant.

## Electives

Any courses may be chosen as electives. However, students without strong skills in writing are strongly urged to take URPA 5341, Professional Report Writing, as one of their electives; students lacking background in architecture, landscape architecture, or graphic communication are strongly urged to take CIRP 5314, Advanced Planning Graphics and Presentation Workshop, as an elective; and students lacking experience in project management and oral presentations are strongly urged to take CIRP 5363, Communication Skills in Planning and Management, as an elective choice.

## Dual Degrees

Dual degrees can be arranged with any suitable program. By participating in a dual degree program, students may apply 6-18 total semester credit hours jointly to meet the requirements of both degrees, thus reducing the total number of hours required to earn both degrees separately (subject to the approval of Graduate Advisors from both programs). Degree plans, thesis or professional report proposals and programs of work must be approved by Graduate Advisors from both programs. The successful candidate will be awarded both degrees rather than one joint degree.

To participate in the dual degree program, students must make separate application to each program and must submit a separate program of work for each degree. Those interested in the dual degree program should consult the appropriate Graduate Advisors for further information on course requirements. See also the statement on Dual Degree Programs in the general information section of the catalog.

Arrangements to offer the following dual degrees have already been made between CIRP and the appropriate Graduate Advisors.

- M.C.R.P. and M.P.A. (Master of Public Administration)
- M.C.R.P. and M.A. (Master of Arts in Urban Affairs)
- M.C.R.P. and M.S.W. (Master of Social Work)
- \*M.C.R.P. and M.Arch. (Master of Architecture)
- M.C.R.P. and M.S.L.A. (Master of Science in Landscape Architecture)
- M.C.R.P. and M.S.C.E. (Master of Science in Civil Engineering)/  
M.Engr. (Master of Engineering)
- M.C.R.P. and M.S.Ev.S.E. (Master of Science in Environmental Science and Engineering)



\*CIRP students without a Bachelor's degree in Architecture will take Path A in the architecture program; those with an undergraduate degree will take Path B. All 15 credit hours of electives in the M.Arch. program will be taken in the MCRP program. Only in special instances may students select the thesis substitute plan of the MCRP program.

## Certificate in Development Review (CDR)

The CDR certificate program provides training in zoning, subdivision plat review, communication skills and private land development for both entry-level planners/planning technicians, and for professionals in allied fields such as architecture, landscape architecture, law, engineering, and real estate. Planning technicians and other entry-level planners often spend the majority of their time reviewing development proposals with very little training. They can meet their immediate training needs with this certificate, then continue on for a master's degree in planning as their careers progress. Professionals in allied fields often become heavily involved in land development-related issues and have a great need for targeted training such as this certificate offers, but do not need a master's degree. The certificate is designed to meet the needs of both groups.

The certificate requires completion of 15 hours of graduate-level coursework. All students must take CIRP 5304 Plan and Policy Implementation. Two courses are selected from CIRP 5305 Land Use Planning, Management and Development; CIRP 5311 Urban Design; CIRP 5316 Land Use Law; or CIRP 5345 Planning and Real Estate Development. One course in communications (either CIRP 5314 Advanced Planning Graphics and Presentation Workshop, or CIRP 5363 Communication Skills in Planning and Management) is required. Finally, students select one course from the above lists or CIRP 5313 Urban Growth Policies; CIRP 5319 Agencies of Planning and Administration; CIRP 5328/URPA 5326 Public Budgeting; or URPA 5341 Report Writing.

## Certificate in Geographic Information Systems (GIS)

The Geographic Information Systems (GIS) certificate program provides education, skills, applications, and training for graphic displays of neighborhood, city, regional, and small-scale areas. GIS is a powerful computer-based software tool having capabilities to store, manipulate, analyze, and display spatially referenced information. GIS software programs are being used at all levels of government at increasing rates. GIS is a new and effective tool for business, industry, and institutions.

Upon completion, students will be proficient in selecting, using, and applying appropriate computer hardware and software to display graphic information about their subjects of study—whether their field is business, geology, biology, social work, architecture, landscape architecture, or any other discipline.

The certificate requires completion of CIRP 5356 (Introduction to GIS), CIRP 5357 (Intermediate GIS), and CIRP 5331 (GIS Workshop) as well as one or two additional courses to be selected by the student with approval of the GIS Certificate Program advisor.

Examples of courses that would be approved include ARCH 5329, CIRP 5320 and 5340, CSE 5330 and 5356, GEOL 5303, and INSY 5310 and 5335.

## City and Regional Planning (CIRP)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5303. PLANNING HISTORY AND THEORY (3-0).** Various theories of planning including rational comprehensive planning, communicative action, social learning, radical planning. Sets theories within their historical contexts, and examines the social and political details of each era to show the development of diverse planning practices and theories of planning. Evaluates the values embodied in different theories and the effects of different theories on practice and social change. Should be taken in the first year of study.

**5304. PLAN AND POLICY IMPLEMENTATION (3-0).** Development of skills in document preparation including proper methods in preparing and administering the development controls of zoning ordinances, subdivision regulations, and other municipal codes and regulations.

**5305. LAND USE, MANAGEMENT AND DEVELOPMENT (3-0).** Assesses land use, management and development and considers new directions. Relates comprehensive planning, environmental management, and land use.

**5306. URBAN REVITALIZATION (3-0).** Study of the opportunities and challenges faced by the public and private sectors in improving the quality of life in urban downtowns, original neighborhoods, aging suburbs, fringe suburbs and/or edge cities. Issues of safety, service provision, shelter and social capital will be discussed as they apply to revitalization strategies such as infill housing, smart growth, sustainable development, neotraditional planning, and new urbanism. Also offered as URPA 5313; credit will be granted only once.

**5307. URBANIZATION IN THE DEVELOPING WORLD (3-0).** Explores the social, political and spatial dimensions of urbanization processes in developing countries. Covers urban, social, and cultural movements as well as development, processes of urban-rural migration, and globalization. The course will cover all developing regions of the world with an emphasis on Latin American countries. Also offered as URPA 5327. Credit will be given only once.

**5309. TRANSPORTATION/LAND USE MODELING AND POLICY ANALYSIS (3-0).** Overview of transportation/land use with specific transportation models and simulation methods; topics include economic theory of travel demand, land use models, UTPS framework for travel demand estimation, disaggregated travel demand models and abstract mode models.

**5310. INTRODUCTION TO URBAN STRUCTURE, POLICY AND PLANNING (3-0).** Overview of spatial structure and substantive planning areas (e.g., urban design, housing, transportation, etc.); fundamentals and general information necessary for professional planners, including social, economic, and urban planning and political issues and problems; introduction to fiscal impact analysis.

**5311. ELEMENTS OF URBAN DESIGN (3-0).** Study of contemporary urban form and environmental design, emphasizing visual-spatial qualities, social needs and economic linkages. Examination of processes, methods and techniques for solving urban design problems.

**5312. STRATEGIC PLANNING, POLICY AND MANAGEMENT (3-0).** Readings and case studies of strategic planning and management in the public and non-profit sectors; application of principles to an actual situation, involving stakeholder identification, environmental scanning, and formulation of mission statements, goals, and strategies. Also offered as URPA 5357.

**5313. URBAN GROWTH POLICIES (3-0).** Study of the political, societal and physical policies involved in urban growth management.

**5314. ADVANCED PLANNING GRAPHICS AND PRESENTATION WORKSHOP (3-0).** Techniques of presentation, use of graphic tools, and review of recent media advances.

**5315. TRANSPORTATION POLICIES, PROGRAMS AND HISTORY (3-0).** Transportation and related programs and policies in relation to city development and housing patterns. Interdependencies of land use, building development, and social change are explained as transportation-related.

**5316. LAND USE LAW (3-0).** Explores the law of land use in the context of the American legal, economic and political systems. Examines leading court decisions and precedents for their background, content and applicability to contemporary land use.

**5317. INTERMEDIATE DATA ANALYSIS (3-0).** Context and role of data analysis, computers and descriptive and inferential statistical techniques in urban analysis and planning. Fundamentals of inductive statistics, probability and sampling theory, hypothesis testing, chi square, variance analysis, and bivariate and multivariate regression analysis. Also offered as URPA 5342; credit will be given only once.

**5318. TECHNIQUES OF PLANNING AND ADMINISTRATIVE ANALYSIS (3-0).** The use of quantitative and qualitative analysis techniques in urban and regional planning including problem solving processes, group techniques and Delphi; population projection, project evaluation, land use and transportation models; economic base analysis, input-output, and shift and share.

**5319. AGENCIES OF PLANNING AND ADMINISTRATION (3-0).** Contemporary managerial functions involved in running public, private, or non-profit organizations: goal setting, planning, organizing, delegating and motivating others, personal productivity and motivation, time and stress management, controlling, and project management.

**5320. DATABASE MANAGEMENT FOR URBAN PLANNING AND ADMINISTRATION (3-0).** Concepts and computer applications of data management. Topics include data sources, data models, database design, data query, data analysis, and database management techniques for urban planning, management and administration. Credit will be given only once.

**5321. VISUAL BASIC AND GIS (3-0).** Provides an introduction to the techniques and applications of computer graphics and mapping for presenting socioeconomic information in graphic and spatial form.

**5322. ECONOMIC DEVELOPMENT PLANNING AND POLICY (3-0).** Introductory seminar in subnational economic development programs in the U.S. Covers basics of location theory, economic planning, budgeting, incentives, public and private revenue sources, analysis methods such as central place and economic base, intergovernmental efforts, redevelopment, high tech, trade and/or tourism.

**5323. HISTORIC PRESERVATION (3-0).** Covers elements of historic designation, rehabilitation, financial incentives, district regulations, and preservation impacts.

**5328. PUBLIC BUDGETING (3-0).** Rationale of public budgeting including legal, political, social, and administrative perspectives; budgeting techniques and revenue sources. Also offered as URPA 5326. Credit will be given only once.

**5331. GIS WORKSHOP (3-0).** Skills, practical experience, problem-solving methods and techniques in geographic information systems. Capstone course for GIS Certificate Program; substitutes for one Project Planning Course.

**5332. PROJECT PLANNING (0-9).** Skills, practical experience, problem-solving methods and techniques in mapping, design, planning, and research projects. Studio and seminar for field studies in the practical application of city and regional planning. This course is designed to provide experience working under contract with a "real world" client. It should be taken in the second half of the student's program of study; exceptions may be made for those with unique backgrounds. May be repeated as topic changes.

**5333. PROJECT PLANNING (0-9).** Skills, practical experience, problem-solving methods and techniques in mapping, design, planning and research projects. Studio and seminar for field studies in the practical application of city and regional planning. This course is designed to provide experience working under contract with a "real world" client. It should be taken in the second half of the student's program of study; exceptions may be made for those with unique backgrounds. May be repeated as topic changes.

**5340. GIS AND SUITABILITY ANALYSIS (3-0).** Acquaints students with theoretical and practical aspects of suitability analysis process or activity allocation on land use/environmental policies. Uses Geographic Information System (GIS) and computer models for overlaying map analysis, buffering, market demand and activity locations, etc. to incorporate environmental and ecological factors into the determination of land development potential including soils, slope, drainage, vegetation, and related factors.

**5341. ENVIRONMENTAL REGULATIONS: LAWS AND PLANNING (3-0).** Federal, state, and local environmental regulations which have effect on the practice of city and regional planning. Specific articles, laws, and directives contrasted and compared to local city design and development controls. Subjects include CERCLA, RCRA, SARA, TSCA, OSH Act, among others.

**5342. ENVIRONMENTAL POLICY (3-0).** Focuses on the physical environmental dimensions of urbanization including such factors as pollution, waste disposal, and land use; stresses the role of economic, social, and political institutions as these affect environmental quality of the city. Also offered as URPA 5317; credit will be granted only once.

**5345. PLANNING AND REAL ESTATE DEVELOPMENT (3-0).** The goals, strategies, methods, and achievements of major participants in the urban land and building markets are examined. Land owners, speculators, real estate brokers, developers, bankers, lawyers, non-profit builders, and government agencies are studied, as well as such business tools as: market and feasibility analysis, appraisal techniques, proforma analysis, and others.

**5346. QUALITATIVE METHODS (3-0).** The study of qualitative research and analysis methods. Also offered as URPA 5344; credit will be given only once.

**5347. URBAN PROBLEMS (3-0).** Specific urban problems examined in depth, traced to their historical origins to see how they or similar problems have been dealt with in other times and places. Students will then propose possible solutions to the problems in their contemporary form. Also offered as URPA 5319; credit will be given only once.

**5350. ENVIRONMENTAL PLANNING (3-0).** Overview of environmental planning issues and problems, including basic ecological principles; development and effects of the chemical industry; policies on international issues; environmental justice and ethics; environmental economics, including externalities and public goods; sustainable

development; overviews of planning for air quality, water quality, solid waste, pollution prevention, habitat conservation, etc.; and plan implementation, including enforcement, regulation and funding.

**5351. TECHNIQUES OF ENVIRONMENTAL ASSESSMENT (3-0).** Analysis of impact assessment documents from a variety of projects; study of federal laws and regulations governing the process; state impact assessment laws and regulations; and procedures used in other nations. Students will prepare an environmental assessment for a real-world project. Overviews of environmental site assessment, MIS documents, and environmental auditing will also be given.

**5353. ENVIRONMENTAL LAW (3-0).** This seminar examines the role of environmental law within the political-institutional framework of the American system. Emphasis is on the legal-judicial aspects of environmental regulation. Analyzes the decision of U.S. courts as these affect and interpret environmental laws and regulations for their legality and constitutionality.

**5354. HOUSING PLANNING, POLICY AND FINANCE (3-0).** Evaluation of the effect of state, local, and federal housing policy on the urban arena. Topics will be selected from federal subsidy programs, tax subsidies, operations of financial intermediaries, and related areas.

**5356. INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS (3-0).** Introduction to GIS and the application of computer graphics systems in the storage, processing, and retrieval of geographic urban and regional information; case examples and related projects and issues of system management.

**5357. INTERMEDIATE GEOGRAPHIC INFORMATION SYSTEMS (3-0).** Applications of GIS to typical urban and regional geographic information problems and projects. Prerequisite: CIRP 5356 or consent of instructor.

**5358. INTELLIGENT TRANSPORTATION SYSTEMS (ITS) AND PLANNING (3-0).** Concepts, components, deployments, and implementations of ITS; methods for ITS evaluations; linkage between ITS and traditional transportation planning; and issues related to ITS planning and deployment.

**5360. COMPUTER METHODS FOR TRANSPORTATION PLANNING (3-0).** Applications of computer software (for example, TransCad, Tranplan) in transportation planning modeling. Theories of residential location choice and travel behavior. Topics may include land-use and travel demand models, trip distribution models, mode choice models, and network equilibrium.

**5363. COMMUNICATION SKILLS IN PLANNING AND MANAGEMENT (3-0).** Principles of and practical communication skills for planners and administrators: interpersonal communications, critical analyses, effective writing, oral presentations, creative thinking, team building, participative decision making, and conflict management.

**5364. ECONOMIC BASE AND INDUSTRIAL DEVELOPMENT POLICY (3-0).** Theories and methods of local and regional economic base analyses; techniques for inventorying strengths, weaknesses,

opportunities and threats of local capital, labor and land resources; alternative policy responses to industrial development issues arising from economic base analysis.

**5191, 5291, 5391. CONFERENCE COURSE.** Special subjects and issues as arranged by individual students and faculty members. May be repeated for credit. Graded P/F/R.

**5193. MASTER'S COMPREHENSIVE EXAMINATION (1-0).** Directed study, consultation and comprehensive examination over coursework leading to thesis substitute for MCRP degree. Required of all thesis substitute students not enrolled in other courses during semester in which they plan to graduate. Graded P/F/R only.

**5195-5695. SPECIAL TOPICS IN PLANNING.** Selected topics in City and Regional Planning. May be repeated for credit.

**5197-5397. PROFESSIONAL REPORT.** Preparation of final professional report as a thesis substitute for MCRP degree. Required of all thesis substitute students not enrolled in CIRP 5193. Graded P/F/R only.

**5398, 5698, 5998. PLANNING THESIS.** 5398 graded R/F only. 5698 and 5998 graded P/F/R.

### Ph.D. Level Courses

**6301. THEORETICAL FOUNDATIONS OF URBAN AFFAIRS (3-0).** Explores the development and function of theoretical models in urban affairs. It examines the major theories from the social sciences designed for framing urban issues and public policy. Also offered as URPA 6301.

**6305. SEMINAR IN URBAN PLANNING PROCESSES (3-0).** Final course in urban planning field. Focus on the various political, economic, and social institutions and theoretical approaches in the planning process, and application of these multidisciplinary perspectives in the analysis of specific planning issues.

**6346. ADVANCED DATA ANALYSIS (3-0).** An introduction to selected advanced techniques related to planning analysis. Subjects include advanced applied regression analysis, multivariate logit analysis and multinomial logistic regression. Applications of projection techniques, land use and transportation models and methods of regional analysis. Also offered as URPA 6346; credit will be given only once.

### Urban Planning and Public Policy (UPPP)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**6399, 6699, 6999. DISSERTATION.** 6399 and 6699 graded R/F only; 6999 graded P/F/R.

# Program in Public Administration

[www.uta.edu/supa](http://www.uta.edu/supa)

**Area of Study and Degree**  
Public Administration  
M.P.A.

**Master's Degree Plan**  
Non-Thesis

**Graduate Advisor**  
David W. Tees  
501B University Hall, 817-272-3304

**Program Graduate Faculty**  
**Professors**  
Cole, Cornehlis,  
Taebel, Wyman (Chair)

**Associate Professors**  
Arvidson, Barrett,  
Hisson, Tees, Wegner

**Assistant Professors**  
Guignard, Rodriguez, Stokes

**Department of Political Science**  
Clark (Vice-Chair),  
Farrar-Myers, Gutierrez, Knerr

## General

Public Administration is concerned with the formulation, analysis and implementation of public policy in urban institutions. With an interdisciplinary focus, this program gives special emphasis to the urban community and the special challenges of public managers who serve in urban areas. The curriculum is designed to develop leadership capacity, understanding of the political, social, and economic characteristics of today's urban environment and the ability to apply current theories of management and analysis to difficult management issues. The program is meant as preparation for those entering management careers in government for the first time or as career development for those already employed who are seeking upward mobility in public management. The Master of Public Administration is a joint program of the School of Urban and Public Affairs and the Department of Political Science.

The MPA degree at the School of Urban and Public Affairs is accredited by the National Association of Schools of Public Affairs and Administration (NASPAA), and the curriculum conforms to NASPAA standards.

Those seeking admission to the MPA program can choose between two program options: 1) courses taught on campus primarily during evening hours; and 2) SUPA MPA courses taught online through The University of Texas System TeleCampus. Applicants who choose the on-campus option may plan their courses to include the requirements of a certificate program such as the Certificate in Urban Nonprofit Management. A description of the various certificate offerings can be found in the Urban and Public Affairs section of the catalog. Applicants who choose the online option may find it more convenient at times and are welcome to take some of the scheduled online courses on campus instead.

A hallmark of the MPA program is its distinguished faculty that combines extensive academic and field experience in public administration with a wide range of related backgrounds. Augmenting the permanent faculty are several adjunct professors with impressive credentials in the public management field, including James Kunde, a member of the National Academy of Public Administration and former city manager of Dayton, Ohio; Richard Greene, regional director of EPA and former mayor of Arlington, Texas; and George Campbell, a former president of the Texas City Management Association with experience as a city manager in several Texas cities.

## Objectives

The MPA program is guided by two educational objectives. The first is to create the conditions for students to acquire extensive knowledge of public policy, political systems, administrative practices and research methods as preparation for significant professional careers in the public sectors. The second is to prepare students to apply current theories of management and analysis, thereby helping them to master their current work responsibilities as public administrators and preparing them for exemplary leadership and management in the increasingly complex urban environment of future years.

## Degree Requirement and Courses

The total numbers of semester credit hours will range from a minimum of 36 to a maximum of 39 as follows: (See departmental listings for course descriptions in other sections of the catalog as follows: URPA: Urban and Public Affairs; POLS: Political Science; CRCJ: Criminal Justice; SOCI: Sociology; ECON: Economics; HIST: History; ACCT: Accounting.)

### 1. Basic Common Courses (9 hours)

SUPA 5300 Foundations of Urban Planning and Sociology  
 SUPA 5301 Foundations of Urban Politics and Economics  
 SUPA 5302 Foundations of Urban Research and Analysis

### 2. Political, Legal, Economic and Social Institutions and Processes (6 hours)

URPA 5303 The Metroplex: A Survey of Urban Affairs, Planning and Administration  
 URPA 5304 Urban Politics or  
 POLS 5314 Topics in Public Administration and Policy Making: State and Local Politics and Policies  
 URPA 5305 Theories of Urban Society  
 URPA 5306 The Urban Economy  
 URPA 5308 Urban History  
 URPA 5309 Intergovernmental Relations or  
 POLS 5310 Federalism and Intergovernmental Relations  
 URPA 5325 Urban and Administrative Law

### 3. Urban Public Policy (6 hours)

URPA 5310 Urban Policy and the Law  
 URPA 5311 Social Policy Formation  
 URPA 5312 Economic Policy  
 URPA 5313 Community Development  
 URPA 5314 Health Policy  
 URPA 5315 Urban Education Policy  
 URPA 5316 Human Services  
 URPA 5317 Urban Environmental Policy  
 URPA 5318 Social Welfare Policy  
 URPA 5319 Urban Problems  
 URPA 5391 Topics in Urban Policy  
 POLS 5314 Topics in Public Administration and Policy Making: Energy and Environmental Politics and Policy  
 POLS 5314 Topics in Public Administration and Policy Making: Health Care Politics and Policy Making  
 POLS 5314 Topics in Public Administration and Policy Making: Public Policy Analysis  
 POLS 5314 Topics in Public Administration and Policy Making: The Politics of Governmental Reform  
 POLS 5314 Topics in Public Administration and Policy Making: U.S. Public Policy and the Mexican-American Community  
 POLS 5314 Topics in Public Administration and Policy Making: Special Topics in Policy Making  
 Policy courses from other departments as appropriate. Students may petition the graduate advisor to have a professional field, such as planning, substitute for the "Urban Public Policy" field.

### 4. Administrative Theory, Practices and Processes (12 hours)

URPA 5320 Public Organization Theory  
 URPA 5321 Urban Management  
 POLS 5302 Trends in Public Administration and Policy Management

POLS 5314 Topics in Public Administration and Policy

Making: Public Budgeting and Fiscal Policies

POLS 5314 Topics in Public Administration and Policy

Making: Urban Administration

URPA 5322 Politics, Policy and Public Administration

URPA 5323 Public Organizational Change

URPA 5392 Topics in Urban Management

URPA 5352 Personnel Management and Conflict Resolution in the Public Sector

CRCJ 5318 Criminal Justice Personnel Administration

URPA 5324 Urban Public Finance or

ECON 5304 Advanced Public Finance

URPA 5326 Public Budgeting (also offered as CIRP 5328)

URPA 5327 Comparative Administration and Policy

URPA 5328 Small City Management

ACCT 5320 Governmental and Nonprofit Accounting

URPA 5329 Financial Management in the Public and

Non-Profit Sectors

URPA 5351 Human Resources

URPA 5350 Principles of Public Administration

URPA 5353 Urban Government Reform and Innovation

URPA 5354 Management of Non-Profit Organizations

URPA 5355 Non-Profit Institutions

URPA 5356 Public Entrepreneurial Management

URPA 5357 Strategic Planning and Management

### 5. Techniques of Analysis (3 hours)

URPA 5341 Professional Report Writing

URPA 5342 Strategies for Urban Research or

URPA 5343 Applied Urban Analysis

URPA 5345 Evaluation Research

URPA 5348 Cost Benefit Analysis

URPA 5349 Introduction to Microcomputers for Planning and Administration

URPA 5395 Conference Course in Urban Affairs

SOCI 5304 Social Statistics

### 6. Internship (3 hours)

URPA 5360 Urban Management/Planning Internship, for students with less than one year of appropriate work experience (also offered as CIRP 5392).

## Online MPA Curriculum

Students who choose the MPA Online option will complete the following coursework.

### 1. Basic Common Courses (9 hours)

SUPA 5300 Foundations of Urban Planning and Sociology  
 SUPA 5301 Foundations of Urban Politics and Economics  
 SUPA 5302 Foundations of Urban Research and Analysis

### 2. Political, Legal, Economic and Social Institutions and Processes (6 hours)

URPA 5304 Urban Politics

URPA 5309 Intergovernmental Relations

### 3. Urban Policy (6 hours)

URPA 5310 Urban Policy and the Law

URPA 5312 Economic Policy

4. **Administrative Theory, Practices and Processes** (12 hours)

- URPA 5320 Public Organizational Theory
- URPA 5322 Politics, Policy and Public Administration
- URPA 5326 Public Budgeting
- URPA 5327 Comparative Administration and Policy

5. **Techniques of Analysis** (3 hours)

- UPRA 5345 Evaluation Research

6. **Internship** (3 hours)

- URPA 5360 Urban Management/Planning Internship, for students with less than one year of appropriate work experience (also offered as CIRP 5392).

## Dual Degree Programs

Students in public administration may participate in one of five dual degree programs whereby they can earn a Master of Public Administration and 1) a Master of City and Regional Planning, 2) a Master of Science in Social Work, 3) a Master of Science in Nursing, 4) a Master of Arts in Criminal Justice, or 5) a Master's of Sociology. By participating in a dual degree program, students can apply a number of semester hours jointly to meet the requirements of both degrees, thus reducing the total number of hours which would be required to earn both degrees separately. The number of hours which may be jointly applied ranges from nine to 18 hours, subject to the approval of Graduate Advisors from both programs. To participate in the dual degree program, students must make separate application to each program and must submit a separate Program of Work for each degree. Those interested in the dual degree program should consult the appropriate Graduate Advisor(s) for further information on course requirements. See also the statement of Dual Degree Programs in the general information section of this catalog.

## Certified Public Management Program

The Certified Public Management (CPM) Program is a nationally accredited program of seven courses offered over a 12-month period. Each course meets two days a month for two months. Courses cover such topics as personnel administration, quality management, organizational communication, public finance and budgeting, productivity, and information systems. The program has been endorsed by the American Society for Public Administration and has been approved for continuing education credit by the County Commissioners Education Committee, the Texas Commission on Law Enforcement Standards and Education, and the Texas State Board of Accountancy. Students completing the program may apply to have up to 6 hours of transfer credit applied to the Master of Public Administration.

## Certificate in Urban Nonprofit Management

The Urban Nonprofit Management Certificate provides in-depth management training to nonprofit managers, staff, board members and volunteers to strengthen their management skills, administrative systems, and service delivery programs.

Students from any department or discipline may elect to complete the certificate program. Upon completion, students will be prepared to assume key roles in any nonprofit institution.

The certificate requires completion of URPA 5354 (Management of Nonprofit Organizations) and URPA 5355 (Nonprofit Institutions) as well as three additional courses to be selected by the student with approval of the Urban Nonprofit Management certificate program advisor. Examples of courses that would be approved include: URPA 5304 The Metroplex; URPA 5329 Financial Management in the Public and Nonprofit Sector; URPA 5351 Personnel and Human Resources in the Public Sector; URPA 5392 Entrepreneurial Management; CIRP 5319 Agencies of Planning and Administration or CIRP 5312 Strategic Planning and Management; CIRP 5324 Community Development or CIRP 5306 Urban Development; SOCW 5307 Introduction to Human Services Administration; SOCW 5303 Foundations of Social Policy and Services; MARK 5311 Marketing; MARK 5345 Creative Problem Solving.

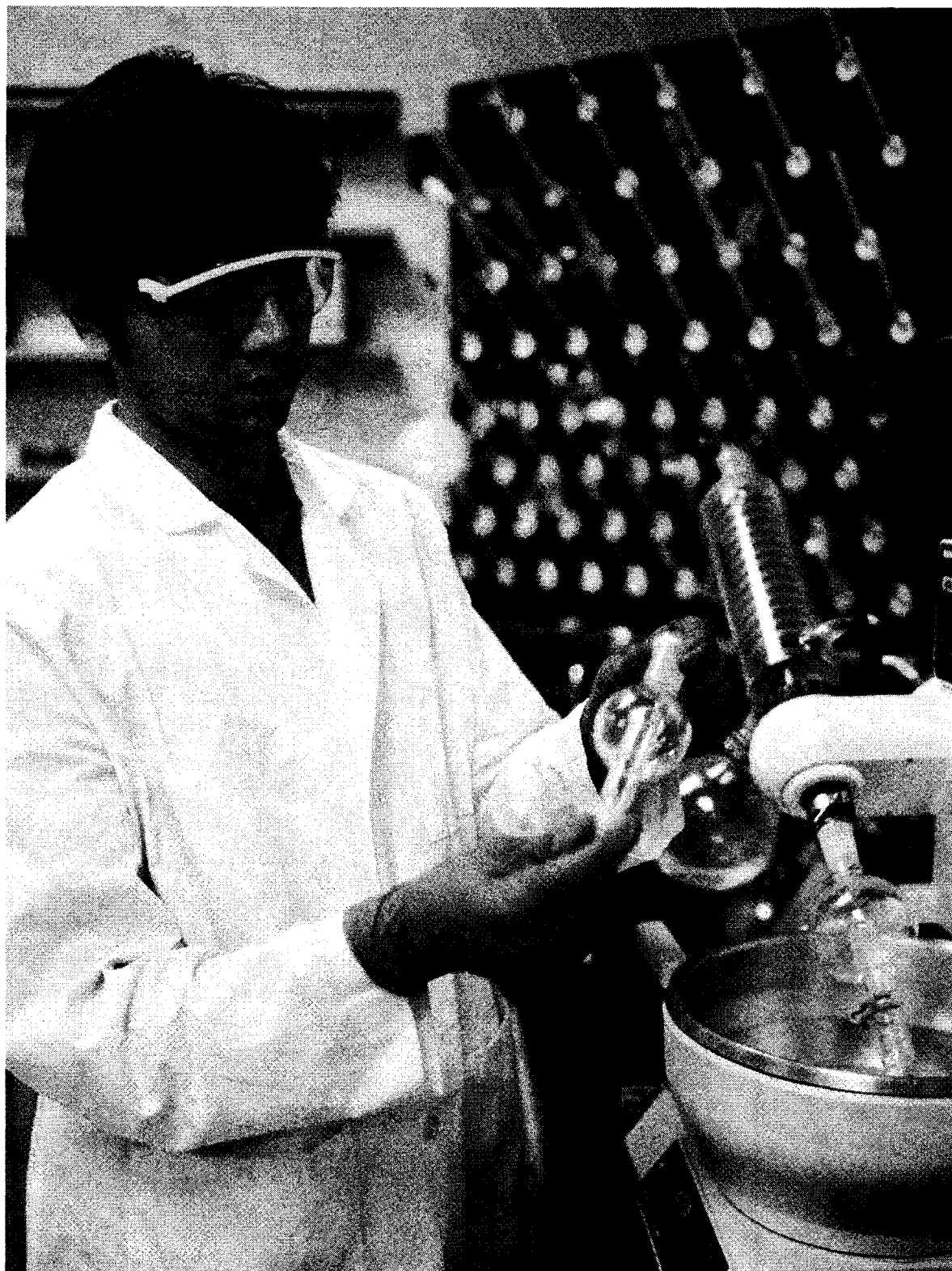
Students who are already enrolled in a graduate degree program at U.T. Arlington need only declare their intent to enroll by submitting the appropriate application form to the Urban Nonprofit Management Graduate Advisor. No prerequisite requirements are essential for these students.

Students who desire only to enroll in the Urban Nonprofit Management Certificate program but NOT in a graduate degree program may apply for admission to U.T. Arlington as a special student or "non-degree seeking" student. An undergraduate degree and grade point average of 3.0 shall be required. A GRE (graduate record examination) score and letters of recommendation are not necessary for admission to the Urban Nonprofit Management Certificate program. Any student that later seeks a graduate degree in a U.T. Arlington college or school may apply nine hours of coursework toward that degree—within six years of completion and award of the Urban Nonprofit Management Certificate and by petition to the Graduate School through her or his prospective academic department. The acceptance or waiver of the remaining six hours taken as part of the requirements for the award of the Urban Nonprofit Management Certificate is at the discretion of each department.

Graduate students in any degree program at U.T. Arlington may register for Urban Nonprofit Management courses using standard registration procedures. It should be noted that class slots in the two core courses would be reserved for all of those Urban Nonprofit Management Certificate program participants who are accepted. Urban Nonprofit Management program students who are enrolled in other academic schools or colleges must obtain written course approval from their respective graduate advisors.

Professionals who desire to enroll in any or both of the core courses for continuing education hours may do so as special students. If at a later date these students decide to apply for the Urban Nonprofit Management Certificate program, the hours already taken as continuing education will be applied (within six years of completion of the courses) to the certificate program requirements.

## Interdepartmental and Intercampus Programs



# Program in Engineering Management

<http://ie.uta.edu>

Area of Study and Degree  
Engineering Management  
M.S.

Master's Degree Plan  
Non-Thesis

Graduate Advisor  
D.H. Liles  
420 Woolf Hall, 817-272-3092

Graduate Faculty  
The Graduate Faculty of the colleges  
of Business Administration and Engineering

## Objective

The Engineering Management Program is offered as an interdisciplinary program that integrates engineering and business concepts. The curriculum prepares an experienced professional engineer or scientist for a leadership role in planning, developing and managing firm's technological resources including people, technology and processes. Graduates acquire an understanding how to use the technical base to accomplish the organization's operational, strategic and competitive objectives.

## Admission

Applicants must hold a baccalaureate degree in science, mathematics, engineering or other appropriate field.

### Unconditional Admission

Unconditional admission into the Engineering Management Program is granted if all of the following conditions are met.

- A GPA of at least 3.0 in the last 60 hours of undergraduate coursework or prior graduate work
- A minimum score of 550 on the GRE quantitative section and 350 on the GRE verbal section
- A minimum score of 500 on the handwritten TOEFL (213 on the computer-based version) if English is not the applicant's native language
- Adequate preparation in mathematics, science, and engineering or other appropriate field. Industrial experience is preferred for the regular program and required for the cohort program.

### Probationary Admission Criteria

Prospective students not meeting the conditions for unconditional admission may be granted probationary admission if their GPA is 2.6 or greater. Students granted probationary admission must maintain a GPA of at least 3.0 for the first 9 hours completed at UTA. Other conditions, such as deficiency courses, may be specified by the Graduate Advisor.

### Deferral

The admission decision is deferred if insufficient information is available.

### Denial

Prospective students with a GPA below 2.6 may be denied admission at the discretion of the Graduate Advisor. The Graduate Advisor may grant probationary admission if other factors suggest a potential for success in the graduate program.



## Degree Requirements

The M.S. degree in Engineering Management requires 36 hours of coursework. The coursework is divided between the Department of Information Systems and Operations Management and the Department of Industrial and Manufacturing Systems Engineering. The program includes such courses as:

- Accounting Analysis
- Engineering Management
- Engineering Economics
- Management Sciences
- Quality Management
- Product Management
- Project Management
- Management of Knowledge and Technology
- Simulation and Optimization
- Technology Development and Deployment

# Program in Environmental Science and Engineering

[www.uta.edu/ese](http://www.uta.edu/ese)

Area of Study and Degrees  
Environmental Science and Engineering  
M.S., Ph.D.

## Master's Degree Plans

Thesis and Non-Thesis

## Program Director

James P. Grover  
468 Life Sciences, 817-272-2405

## Graduate Advisor

Andrew P. Kruzic  
433 Nedderman Hall, 817-272-3822

## Graduate Faculty

Graduate faculty from participating departments in the College of Engineering, College of Science and the School of Urban and Public Affairs are involved in teaching and supervising graduate students' research.

Faculty contacts within these areas include:

### Biology

Burleson, Chippindale, Chrzanowski,  
Formanowicz, Gough, Grover, Hellier,  
Marshall, McMahon, Passy, van Waasbergen

### Chemistry and Biochemistry

Bellion, Rajeshwar, Schelly, Timmons

### Civil Engineering

Crosby, Kruzic, Qasim, Sattler

### Geology

Balsam, Johanneson, Reaser, Wickham

### Psychology

Paulus

### Urban and Public Affairs

Bright, Cornehl, Goldsteen

## Objective

The program in Environmental Science and Engineering is designed to provide graduate students an integrated, multidisciplinary education, nurtured through a carefully tailored degree program requiring a breadth of understanding and mastery of a spectrum of scientific and engineering principles. Among the goals is to provide students who have earned engineering or science undergraduate degrees a common ground for interdisciplinary communication, an understanding of the environment, and competence in a discipline that will enable them to evaluate and solve complex environmental problems.

## Admission

### EVSE Master's Program

For unconditional admission a student must meet the following requirements:

1. A B.S. degree in biology, chemistry, geology, mathematics, or engineering. Students with a Bachelor's Degree in other sciences will also be considered, subject to satisfactory completion of courses to make up for deficiencies.
2. A minimum undergraduate GPA of 3.00 on a 4.0 scale, as calculated by the Graduate School.
3. Graduate Record Examination (GRE) scores are considered in admission decisions. Masters students who have succeeded in the EVSE Program typically score higher than 550 on the quantitative portion of the GRE.
4. For applicants whose native language is not English, a minimum score of 550 on the Test of English as a Foreign Language (or an equivalent score on a computer-based test) or a score of 40 on the Test of Spoken English.
5. Favorable letters of recommendation from people familiar with the applicant's academic work.
6. Students may be considered for unconditional admission if further review of their transcripts, recommendation letters, correspondence or direct interactions with Environmental Science and Engineering faculty, and statement of professional or research interests indicates that they are qualified to enter the Masters Program.

### Probationary Admission

If an applicant does not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in their first 12 hours of graduate coursework at UTA.

### Deferred and Provisional Admission

A deferred application decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

### Denial of Admission

A candidate may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above.

## Scholarships and Fellowships

Students who have no provisional admission conditions to meet will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UTA in the Fall semester, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain their fellowships.

## EVSE Doctoral Program

For unconditional admission a student must meet the following requirements:

1. A Masters Degree or at least 30 hours of graduate coursework in environmental science, biology, chemistry, geology, mathematics or engineering.
2. A minimum graduate coursework GPA of 3.00 on a 4.0 scale, as calculated by the Graduate School.
3. Graduate Record Examination (GRE) scores are considered in admission decisions. Doctoral students who have succeeded in the EVSE Program typically score higher than 600 on the quantitative portion of the GRE.
4. For applicants whose native language is not English, a minimum score of 550 on the Test of English as a Foreign Language (or an equivalent score on a computer-based test) or a score of 40 on the Test of Spoken English.
5. Favorable letters of recommendation from people familiar with the applicant's academic work and/or professional work.
6. Students may be considered for unconditional admission if further review of their transcripts, recommendation letters, correspondence or direct interactions with Environmental Science and Engineering faculty, and statement of research interests indicates that they are qualified to enter the Doctoral Program.

## Probationary Admission

If an applicant does not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in their first 12 hours of graduate coursework at UTA.

## Deferred and Provisional Admission

A deferred application decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

## Denial of Admission

A candidate may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above.

## Scholarships and Fellowships

Students who have no provisional admission conditions to meet will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on consideration of

the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UTA in the Fall semester, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain their fellowships.

## Degree Requirements

### Master's Degree

For the Master of Science in Environmental Science and Engineering, all students take a 15 semester hour core of courses as follows:

CE 5321 Engineering for Environmental Scientists  
CE 5319 Physical-Chemical Processes II

Two of the following courses in sciences:

EVSE 5309 Environmental Science-Biological Aspects\*  
EVSE 5310 Environmental Science-Chemical Aspects\*  
EVSE 5311 Environmental Science-Geological Aspects\*

\*Students with less than 20 undergraduate hours in biology, chemistry, or geology will need to take a third environmental systems course as a deficiency. Students entering with a BS degree in one of these areas must take their two courses in the other areas.

One of the following two courses in City and Regional Planning  
CIRP 5341 Environmental Regulations: Laws and Planning, or  
CIRP 5350 Environmental Planning

In addition to the core courses, the minimum requirements for the master's degree with thesis include:

9 hours of electives within one of the following units: Biology, Chemistry, Geology, Civil and Environmental Engineering, or Urban and Public Affairs  
6 hours of additional electives  
2 hours of EVSE seminar  
6 hours thesis

Other requirements include successful defense of the thesis by the supervising committee.

In addition to the core courses the minimum requirements for the master's degree without thesis include:

9 hours of electives within one of the following units: Biology, Chemistry, Geology, Civil and Environmental Engineering, or Urban and Public Affairs  
12 hours of additional electives\*  
2 hours of EVSE seminar

\*Must include 6 hours in unit(s) outside that in which the first 9 hours of additional coursework are taken. Other requirements include successful completion of the Master's Comprehensive Examination in the final semester.

## Dual Degree Program

Dual master's degrees can be arranged with any suitable program. By participating in a dual degree program, students may apply 6-18 total semester credit hours jointly to meet the requirements of both degrees, thus reducing the total number of hours which would be required to earn both degrees separately. The number of hours which may be jointly applied ranges from six to 18, subject to the approval of Graduate Advisors from both programs. Degree plans, thesis or

professional report proposals and programs of work must be approved by Graduate Advisors from both programs. The successful candidate will be awarded both degrees rather than one joint degree.

To participate in the dual degree program, students must make separate application to each program and must submit a separate program of work for each degree. Those interested in the dual degree program should consult the appropriate Graduate Advisors for further information on course requirements. See also the statement on Dual Degree Programs in the general information section of this catalog.

Arrangements to offer a dual degree have already been made between EVSE and the Program in City and Regional Planning (M.C.R.P. degree), School of Urban and Public Affairs.

## Doctoral Degree

The Doctoral Program provides students with the interdisciplinary knowledge and skills to conduct independent research in Environmental Science and Engineering. Students conduct dissertation research under the supervision of a faculty member in one of the participating units (Biology, Chemistry, Geology, Civil and Environmental Engineering, or Urban and Public Affairs). The supervising professor and a faculty committee assign courses in this primary area of emphasis to support the student's research and professional goals. To provide interdisciplinary training, additional courses are assigned in a secondary area of emphasis.

Students enter the Doctoral Program with a Master's degree in a science or engineering field, or with 30 semester hours of graduate coursework. In the first year of residence, a Diagnostic Examination is conducted to evaluate this previous work. If they have not already done so in their previous work, all Doctoral students must take two engineering courses; two or three science courses (two if their prior training is in science, three if in engineering or another non-science field); and one course in policy or planning. The student's supervising committee must approve all courses taken to meet these requirements.

Students may choose among any of the five participating units for their primary and secondary areas of emphasis. Course selection within these areas of emphasis must result in a cohesive program that supports the dissertation research.

Other requirements include:

1. Successful completion of the Diagnostic Examination at the end of the first year of residence.
2. Successful completion of the Comprehensive Examination, an oral defense of a research proposal to be pursued for the dissertation, and a specialization examination over areas of the student's proposed research.
3. Demonstration of proficiency in one foreign language or a research tool such as advanced computer skills, statistics, or operations research.
4. Successful defense of the dissertation and acceptance of the dissertation by the supervising committee.

## Certificate in Hazardous Materials and Waste Management

### Program Objective

The purpose of the Certificate in Hazardous Materials Management is to provide professionals with undergraduate degrees in science or engineering (e.g., Biology, Chemistry, Geology, Civil Engineering or

other appropriate degrees) with graduate instruction that will allow them to direct hazardous materials and waste management, treatment and remediation programs. As Hazardous Materials Management is an interdisciplinary subject, the certificate program is designed to provide science and engineering graduates with coursework in appropriate areas outside of their undergraduate major that will provide them with the necessary expertise in this area. The certificate provides students with a post-baccalaureate educational opportunity that is narrower in scope, and shorter in duration than its associated MS graduate degree program in Environmental Science and Engineering (EVSE).

Any student that later seeks a graduate degree in the EVSE MS program may apply 12 of their 15 hours of coursework in this certificate program toward the EVSE MS degree program if done within 6 years of completion of the certificate by petitioning the Graduate School through the College of Science.

## Admission Requirements

The terms of their admission allow participants to take the specific courses approved for the certificate program. They will not be allowed to take courses outside of the program. Under these rules, students are admitted as special students. All participants in the program must meet the 3.0/4.0 grade point average (GPA) requirement of the Graduate School, College and EVSE Program. They must maintain an overall GPA of 3.0 in their coursework in order to receive the Certificate.

## Requirements for the Certificate

The Certificate in Hazardous Materials requires that students take and successfully complete 15 advanced hours in Civil and Environmental Engineering, Environmental Science and Engineering, City and Regional Planning and related courses with a minimum GPA of 3.0.

Before being awarded the certificate, students must also present evidence of having completed Hazardous Waste Operations and Emergency Response (HAZWOPER) or approved equivalent training that meets OSHA/EPA training requirements for workers performing hazardous waste site functions in accord with the provisions in 29 CFR 1910.120 of the Superfund Amendments and Reauthorization Act for workers at uncontrolled hazardous waste sites. This training is offered at The University of Texas at Arlington, Southwest Environmental Education Training Center as a formal or Web-based course.

### Required Courses:

CE 5329 Environmental Risk Based Corrective Action  
CE 6323 Hazardous Waste Management  
CIRP 5341 Environmental Regulations or CIRP 5353 Environmental Law

### Electives (Two courses chosen from the following list of courses):

CIRP 5342 Environmental Policy  
CIRP 5350 Environmental Planning  
CIRP 5351 Environmental Assessment  
CIRP 5356 Geographic Information Systems  
EVSE 5320 Toxicology  
EVSE 5321 Environmental Health  
GEOL 5301 Environmental Geochemistry and Geology  
GEOL 5303 Understanding Geographic Information Systems

Students may choose appropriate graduate courses other than those listed above with the approval of the EVSE Graduate Studies Committee.

The above courses have been selected because their subject matters directly relate to the knowledge base required of professionals engaged in Hazardous Materials and Waste Management. Students should choose elective courses that best meet their career goals in Hazardous Materials and Waste Management. Students should consult with the Chair of the Environmental Science and Engineering Program's Graduate Studies Committee in developing the most appropriate set of courses for their professional interests. Full course descriptions for the above listed classes are found in the University of Texas at Arlington's Graduate Catalog.

## Certificate in Environmental Science Program Objective

The purpose of this certificate is to provide professionals with undergraduate degrees in science (i.e., Biology, Chemistry or Geology) with graduate instruction in Environmental Science as a means of maintaining and promoting their professional development. As Environmental Science is an interdisciplinary subject, the certificate program is designed to provide science graduates with coursework in environmental science in appropriate areas outside of their undergraduate major. The certificate provides students with a post-baccalaureate educational opportunity that is narrower in scope, and shorter in duration than its associated MS graduate degree program in Environmental Science and Engineering (EVSE).

Any student that later seeks a graduate degree in the EVSE MS program may apply 12 of their 15 hours of coursework toward that program if done within 6 years of completion of the certificate by petitioning the Graduate School through the College of Science.

## Admission Requirements

The terms of their admission allow participants to take the specific courses approved for the certificate program. They are not allowed to take courses outside of their program. Under these rules, students are admitted as non-degree or special students.

All participants in the program must meet the 3.0/4.0 grade point average (GPA) requirement of the Graduate School, College and EVSE Program. They must maintain an overall GPA of 3.0 in their coursework in order to receive the Certificate.

## Requirements for the Certificate

The Certificate in Environmental Science requires that students take and successfully complete 15 advanced hours in Environmental Science and related courses with a minimum GPA of 3.0

The advanced courses available to participants in the certificate program include:

EVSE 5309 Environmental Science-Biological Aspects<sup>1</sup>  
 EVSE 5310 Environmental Science-Chemical Aspects<sup>1</sup>  
 EVSE 5311 Environmental Science-Geological Aspects<sup>1</sup>  
 EVSE 5320 Toxicology  
 EVSE 5300 Environmental Health  
 BIOL 5345 Limnology  
 BIOL 5350 Conservation Biology  
 BIOL 5355 Aquatic Biology  
 BIOL 5326 Wetlands Ecology  
 BIOL 5325 Plant Ecology

CE 5321 Engineering for Environmental Scientists  
 CIRP 5341 Environmental Regulations, Law and Planning  
 CIRP 5350 Environmental Planning  
 GEOL 5301 Environmental Geochemistry  
 GEOL 5303 Understanding Geographic Information Systems  
 GEOL 5407 Environmental Geophysics

<sup>1</sup>At least two of these environmental courses are required and both should be in areas outside of the student's undergraduate major (e.g., A student with an undergraduate major in the Biological Sciences would be required to take EVSE 5310 and 5311).

Students may choose appropriate graduate courses other than those listed above with the approval of the Chair of the EVSE Graduate Studies Committee.

The above courses have been selected because their subject matters directly relate to the knowledge base required of professionals engaged in Environmental Science. Students should choose to take those courses that best meet their career goals in Environmental Science. Students should consult with the Chair of the Environmental Science and Engineering Program's Graduate Studies Committee in developing the most appropriate set of courses for their professional interests. Full course descriptions for the above listed classes are found in The University of Texas at Arlington's Graduate Catalog.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Environmental Science and Engineering (EVSE)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

5100, 5200, 5300. SELECTED TOPICS IN ENVIRONMENTAL SCIENCE AND ENGINEERING. May be repeated for credit when topic changes.

5294, 5394. INDIVIDUAL PROBLEMS IN ENVIRONMENTAL SCIENCE AND ENGINEERING. Individual research projects supervised by a faculty member. Prerequisite: consent of instructor.

5309. ENVIRONMENTAL SCIENCE-BIOLOGICAL ASPECTS (3-0). An introduction to the biological components of environmental

systems. Population dynamics, species interactions, community structure, biodiversity, bioenergetics, nutrient cycling and human impacts are reviewed. Focus will be on natural processes and their engineering applications.

**5310. ENVIRONMENTAL SCIENCE-CHEMICAL ASPECTS (3-0).** An introduction to the chemistries of air at different altitudes, of water systems and of soils. Chemical and physico-chemical processes at phase boundaries, modeling for kinetics and mass transport, analytical techniques and disposal and recycling are included as well as their impact on engineering decisions.

**5311. ENVIRONMENTAL SCIENCE-GEOLOGICAL ASPECTS (3-0).** Introduction to the tectonic, volcanic, atmospheric, climatic, hydrologic and geochemical processes and natural hazards of the earth, and their interaction with political, economic and engineering decisions.

**5320. TOXICOLOGY (3-0).** An introduction to the principles and mechanisms of toxicology as applied to environmentally encountered toxic agents. Includes concepts of dose-response relationships, absorption of toxicants, distribution and storage of toxicants, biotransformation and elimination of toxicants, target organ toxicity, teratogenesis, mutagenesis and carcinogenesis. Prerequisite: CHEM 2322.

**5321. ENVIRONMENTAL HEALTH (3-0).** An introduction to the broad topic of environmental health and the related considerations relevant to environmental projects. Prepares students to take the Registered Environmental Health Specialist examination.

**5322. ENVIRONMENTAL RISK ASSESSMENT (3-0).** An introduction to the health assessment process, presenting methodologies and guidelines for conducting health assessments. Prerequisite: EVSE 5320.

**5398, 5698, 5998. THESIS.** Graded R/F only.

**5395, 5695. MASTER'S PROJECT.** May be used as elective for students in non-thesis program. Graded P/F.

**6100. SEMINAR IN ENVIRONMENTAL SCIENCE AND ENGINEERING.** Topics presented by faculty, students, and invited lecturers. Graded P/F.

**6197, 6297, 6397. RESEARCH IN ENVIRONMENTAL SCIENCE AND ENGINEERING.** Individually approved research projects. May be repeated for credit. Graded P/F/R.

**6399, 6699, 6999. DISSERTATION.** Graded R/F only.

The following departmental courses are available in addition to others as approved by the Committee on Graduate Studies for Environmental Science and Engineering. Full course descriptions are available elsewhere in the Graduate and Undergraduate catalogs. Up to nine hours of 3000- and 4000-level undergraduate courses can be applied toward formal coursework requirements in the Master's and Ph.D. degree programs, with approval of the student's supervising committee.

### Biology (BIOL)

BIOL 5306. BIOENERGETICS (3-0).

BIOL 5314. BIOMETRY (3-0).

BIOL 5315. COMMUNITY ECOLOGY (3-0).

BIOL 5333. BIOLOGICAL MODELING (3-0).

BIOL 5339. ENVIRONMENTAL PHYSIOLOGY (3-0).

BIOL 5348. ENVIRONMENTAL BIOLOGY (2-3).

BIOL 5350. CONSERVATION BIOLOGY (3-0).

BIOL 5351. ENVIRONMENTAL MICROBIOLOGY (3-0).

BIOL 5354. LIMNOLOGY (3-0).

BIOL 5326. WETLANDS ECOLOGY (3-0).

BIOL 5325. PLANT ECOLOGY (3-0).

BIOL 5320. BIOGEOGRAPHY (3-0).

BIOL 5342. ICHTHYOLOGY (2-3).

BIOL 5345. ORNITHOLOGY (2-3).

BIOL 5355. AQUATIC BIOLOGY (2-3).

BIOL 5361. ADVANCED BIOMETRY (3-0).

BIOL 5362. EXPERIMENTAL DESIGN (3-0).

BIOL 3310. BIOLOGY OF TEXAS (3-0).

BIOL 3341. ENTOMOLOGY (2-3).

BIOL 3455. INVERTEBRATE ZOOLOGY (3-4).

BIOL 3457. GENERAL ECOLOGY (3-3).

BIOL 4444. VERTEBRATE NATURAL HISTORY (3-3).

### Chemistry (CHEM)

CHEM 5300. SELECTED TOPICS IN ADVANCED CHEMISTRY (3-0).

CHEM 5308. DETERMINATION OF MOLECULAR STRUCTURE BY PHYSICAL METHODS (3-0).

CHEM 5309. ORGANIC CHEMISTRY I (3-0).

CHEM 5310. ORGANIC CHEMISTRY II (3-0).

CHEM 5311. ANALYTICAL CHEMISTRY (3-0).

CHEM 5315. INORGANIC CHEMISTRY (3-0).

CHEM 5319. GENERAL BIOCHEMISTRY I (3-0).

CHEM 5320. GENERAL BIOCHEMISTRY II (3-0).

CHEM 5321. METABOLISM AND REGULATION (3-0).

CHEM 5325. ENZYMOLOGY (3-0).

CHEM 5350. ADVANCED POLYMER CHEMISTRY (3-0).

CHEM 5461. ANALYTICAL INSTRUMENTATION (2-8).

CHEM 6201. UNIT OPERATIONS (2-0).

CHEM 6202. PRINCIPLES OF INDUSTRIAL CHEMISTRY (3-0).

CHEM 6203. REGULATORY ASPECTS OF THE CHEMICAL INDUSTRY (2-0).

### Civil and Environmental Engineering (CE)

CE 5318. PHYSICAL-CHEMICAL PROCESSES I (3-0).

CE 5319. PHYSICAL-CHEMICAL PROCESSES II (3-0).

CE 5320. SOLID WASTE MANAGEMENT (3-0).

CE 5321. ENGINEERING FOR ENVIRONMENTAL SCIENTISTS (3-0).

CE 5322. AIR POLLUTION METEOROLOGY AND CHEMISTRY (3-0).

CE 5323. AIR POLLUTION DISPERSION MODELING (3-0).

CE 5324. TRANSPORTATION AND AIR QUALITY (3-0).

CE 5325. BIOLOGICAL PROCESSES (3-0).

CE 5327. AIR POLLUTION CONTROL ENGINEERING (3-0).

CE 5328. FUNDAMENTALS OF AIR POLLUTION (3-0).

CE 5329. ENVIRONMENTAL RISK BASED CORRECTIVE ACTION (3-0).

CE 5347. SURFACE WATER HYDROLOGY (3-0).

CE 5348. GROUND WATER HYDROLOGY (3-0).

CE 6323. HAZARDOUS WASTE MANAGEMENT (3-0).

CE 6314. STORM WATER MODELING (3-0).

CE 6326. INDUSTRIAL AND HAZARDOUS WASTE (3-0).

CE 6328. MODELING OF NATURAL WATER SYSTEMS (3-0).

CE 6329. ADVANCED ENVIRONMENTAL ENGINEERING CONTROL PROCESSES (3-0).

**City and Regional Planning (CIRP)**

- CIRP 5304. PLAN IMPLEMENTATION AND LEGAL CONTROLS (Zoning, Subdivision Ordinances, Capital Budgets) (3-0).  
 CIRP 5305. LAND USE, MANAGEMENT AND DEVELOPMENT (3-0).  
 CIRP 5311. ELEMENTS OF URBAN DESIGN (3-0).  
 CIRP 5313. URBAN GROWTH POLICIES (3-0).  
 CIRP 5340. LAND SUITABILITY ANALYSIS (3-0).  
 CIRP 5341. ENVIRONMENTAL REGULATIONS: LAWS AND PLANNING (3-0).  
 CIRP 5342. URBAN ENVIRONMENTAL POLICY (3-0).  
 CIRP 5350. ENVIRONMENTAL PLANNING (3-0).  
 CIRP 5351. TECHNIQUES OF ENVIRONMENTAL ASSESSMENT (3-0).  
 CIRP 5356. GEOGRAPHIC INFORMATION SYSTEMS (3-0).  
 CIRP 5357. INTERMEDIATE GEOGRAPHIC INFORMATION SYSTEMS (3-0).  
 CIRP 5395. ENVIRONMENTAL LAW (3-0).

**Geology (GEOL)**

- GEOL 5301. ENVIRONMENTAL GEOCHEMISTRY AND GEOLOGY (3-0).  
 GEOL 5303. UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS (GIS) (2-3).  
 GEOL 5306. ENVIRONMENTAL GEOLOGY (3-0).  
 GEOL 5308. NATURAL ENVIRONMENTAL HAZARDS (3-0).  
 GEOL 5325. PALEOCLIMATOLOGY AND PALEOOCEANOGRAPHY (3-0).  
 GEOL 5348. MARINE GEOLOGY (3-0).

**Psychology (PSYC)**

- PSYC 5347. ENVIRONMENTAL PSYCHOLOGY (3-0).

**Urban and Public Affairs (URPA)**

- URPA 5300. THE URBAN COMMUNITY (3-0).  
 URPA 5301. FOUNDATIONS OF URBAN POLITICS AND ECONOMICS (3-0).

# Interdisciplinary Studies

[www.uta.edu/ints/graduate.htm](http://www.uta.edu/ints/graduate.htm)

Area of Study and Degrees  
Interdisciplinary Studies  
M.A., M.S.

Master's Degree Options  
Thesis, Thesis Substitute, Non-Thesis

**Director**  
Cubie Ward  
209 University Hall, 817-272-2338

**Graduate Advisor**  
Allen F. Repko  
209 University Hall, 817-272-2338

**Graduate Faculty**  
The Graduate Faculty of  
The University of Texas at Arlington

## Objective

The purpose of the graduate Interdisciplinary Studies (INDS) degree is to allow individuals to pursue studies in multiple disciplines, to upgrade their formal education in their fields of specialization, and to develop professional skills. INDS is primarily intended for persons who have developed careers or vocations since the baccalaureate degree and who have clearly articulated academic and professional goals.

## Admission

Interdisciplinary Studies (M.A. and M.S.) differs from other U.T. Arlington graduate programs in two ways: it is intended primarily for in-career professionals, and it stresses interdisciplinary curricula and scholarship. These differences are reflected in the admissions requirements for two items (see 2 and 3 below) not typically requested by other UT Arlington graduate programs. In reaching admissions decisions, *all five criteria are considered together. No single factor will eliminate a prospective student from consideration.*

In order for their applications to be processed, prospective students should submit all required materials and scores before Graduate School deadlines (i.e., official transcripts and GRE scores to the Graduate School; Professional Goal Statement, Tentative Program of Work, and recommendations to the Graduate Advisor/Coordinator).

Because of the differences between Interdisciplinary Studies and other graduate degree programs at U.T. Arlington and elsewhere, it is extremely important for prospective students to meet with the Graduate Advisor/Coordinator at least once BEFORE preparing their admissions materials.

## Unconditional Admission

1. *A minimum GPA of 3.0 for the last 60 hours of work toward the bachelor's degree.*
2. *A Professional Goal Statement:* a short narrative that establishes a clear relationship between the applicant's academic and career goals and his or her Tentative Program of Work.
3. *A Tentative Program of Work:* a complete list of the applicant's intended courses to be included in his interdisciplinary program. No more than half the courses may be in one discipline. The list should reflect the intentions of the Goals Statement.
4. *Acceptable scores on the GRE.* If the student's proposed Program of Work indicates a quantitative focus, the applicant would be expected to score a minimum of 500 on the quantitative portion. If the focus is verbal, he or she would be expected to score a minimum of 500 on the verbal portion. If the focus is interdisciplinary business administration and a student submits a GMAT score, he or she would be expected to score a minimum of 500 and/or an equivalent percentile range of the GRE scores expected for the quantitative and verbal focuses.
5. Three letters of recommendation from former professors or, when appropriate, from professional supervisors.

## Probationary Admission

If applicants meet any 4 of the 5 requirements for Unconditional Admission, then they can be granted Probationary Admission status. Students on academic probation must make no grade lower than a "B" in the first 12 hours of their graduate work in order to stay in the program.



## Deficiency Courses

Students who wish to pursue a graduate Interdisciplinary Studies degree, but do not have the necessary background to begin the course of study outlined in their Goals Statement and Program of Work, will be required to take from one to four undergraduate courses in which they can make no grade lower than a "B." These courses will not be counted for graduate credit; they will provide necessary backgrounds for pursuing the graduate degree.

## Deferred Admission

If an applicant does not present adequate evidence of meeting requirements for Unconditional or Probationary Admission, the admission decision may be deferred. The student, in consultation with the Graduate Advisor/Coordinator, can resubmit revised material for reconsideration (for example, a rewritten Professional Goal Statement or improved GRE scores). To minimize the possibility of Deferred Admission and having to resubmit material, students should consult with the Graduate Advisor/Coordinator before applying. See the Graduate Catalog for more information on Deferred Admission.

## Provisional Admission

Provisional admission to the graduate Interdisciplinary Studies program will rarely be granted. Applicants should submit all required materials before the deadline for admission.

## Denial

Typically, failure to meet three or more of the requirements for Unconditional Admission will result in denial of admission.

## M.A. and M.S. Degree Options

The INDS student may select from three program options: 1) The Thesis option requires 24 semester hours of courses and 6 semester hours of thesis, INDS 5698, for a total of 30 semester hours. 2) The Thesis Substitute option requires 30 semester hours of coursework and 3 semester hours of Thesis Substitute, INDS 5393, in which the student demonstrates ability to integrate concepts from his or her major areas of coursework and apply these to a project. 3) The Non-Thesis option requires 36 semester hours of coursework. Both the Thesis Substitute and Non-Thesis options require the Master's Comprehensive Examination (INDS 5193) in the final semester.

## M.A. and M.S. Degree Requirements

Interdisciplinary Studies allows the student great flexibility in designing an academic program to meet specific professional and educational objectives. The primary emphasis is on the student's needs and aspirations.

Interdisciplinary Studies involves coursework in several departments or programs. The student's "Tentative Program of Work" is designed in consultation with the appropriate graduate faculty members of those departments or programs.

The student must complete work in *at least two* disciplines and *may take courses in more than one of the schools or colleges of the University*. The student's selection of coursework will be guided by the Graduate Advisor/Coordinator and the Academic Advisors in the departments or programs from which the coursework is taken. No more than 50 percent of the credit hours in a student's Program of Work may be taken in an area in which the University does not offer an advanced degree, or in the College of Business Administration.

There is no foreign language requirement. In appropriate cases, however, the Advisor/Coordinator *may* recommend that before graduation a student have or acquire competency in a language other than English.

A maximum of nine hours of advanced undergraduate (Junior/Senior level) coursework may be applied to a Program of Work for the purpose of this policy. Graduate foundation courses in the College of Business Administration are considered equivalent to advanced undergraduate courses and apply toward the nine-hour maximum.

At the beginning of the student's last semester of coursework, a supervising committee, composed of three members of the graduate faculty from whom the student has taken coursework, will be selected to conduct the Master's Comprehensive Examination or Thesis defense.

The diploma will state M.A. or M.S. in Interdisciplinary Studies and will not include the student's concentration. In addition, the Committee on Graduate Studies has adopted other policies which govern the general design and content of programs of work in interdisciplinary studies. Information about these policies should be requested from the Graduate Advisor.

## Academic Policies

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Interdisciplinary Studies (INDS) Courses

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5193. MASTER'S COMPREHENSIVE EXAMINATION (1-0).** Directed study, consultation, and comprehensive examination over coursework, leading to the Master's degree in Interdisciplinary Studies. Graded P/F/R.

**5393. THESIS SUBSTITUTE.** In this independent study course the student must demonstrate the student's ability to integrate concepts from his or her major areas of coursework. Prerequisites: completion of 30 hours toward the INDS degree and, during the semester prior to enrollment, submission of a Thesis Substitute Proposal for approval by the instructor and the INDS Committee on Graduate Studies. Graded P/F/R.

**5398, 5698. THESIS.** Research and preparation pertaining to the master's thesis. 5398 graded R/F only; 5698 graded P/F/R.

# Program in Logistics

<http://ie.uta.edu>

**Area of Study and Degree**  
Logistics  
M.S.

**Master's Degree Plan**  
Non-Thesis

**Graduate Advisor**  
K. Jamie Rogers  
420 Woolf Hall, 817-272-3092

**Graduate Faculty**  
The Graduate Faculty of the colleges  
of Business Administration and Engineering

## Objective

The Logistics Program is designed to meet an increasing state, national, and international demand for professionals with technical or business education and experience in the area of logistics and supply chain. Such professionals will need a unique combination of technical and business knowledge and skills and will have technical experience and degrees in engineering, mathematics or business.

Logistics is an interdisciplinary field of study which comprises the entire set of functions associated with the flow of goods, information, and payments among suppliers and consumers from organization of raw material to final recycling or disposal of finished goods. The integration of engineering and business content is done in a fashion that prepares an experienced professional engineer or manager for a leadership role in planning, developing, implementing and managing the firm's logistics and supply chain capabilities in the global marketplace. The overall purpose of the Logistics Program at U.T. Arlington is to provide graduates with the understanding needed to manage the firm's logistics and supply chain systems and infrastructure and to accomplish the organization's operational, strategic and competitive objectives.

## Admission

Applicants must hold a baccalaureate degree in science, mathematics, engineering or other appropriate field. Admission decisions are based on the following criteria:

### Unconditional Admission

Unconditional admission into the M.S. Logistics program is granted if *all* of the following conditions are met.

- A GPA of at least 3.0 in the last 60 hours of undergraduate coursework or prior graduate work
- A minimum score of 550 on the GRE quantitative section and 350 on the GRE verbal section or 500 on the GMAT
- A minimum score of 3 on the GRE analytical writing section for GRE's taken after October 2002
- A minimum score of 500 on the handwritten TOEFL (213 on the computer-based version) if English is not the applicant's native language
- Adequate preparation in mathematics, science, and engineering or other appropriate field, and three years of experience

### Probationary Admission Criteria

Prospective students not meeting the conditions for unconditional admission may be granted probationary admission if their GPA is 2.6 or greater. Students granted probationary admission must maintain a GPA of at least 3.0 for the first 12 hours completed at UTA. Other conditions, such as deficiency courses, may be specified by the Graduate Advisor.

### Deferral

The admission decision is deferred if insufficient information is available.

## Denial

Prospective students with a GPA below 2.6 may be denied admission at the discretion of the Graduate Advisor. The Graduate Advisor may grant probationary admission if other factors suggest a potential for success in the graduate program.

## Degree Requirements

The M.S. degree in Logistics requires 36 hours of coursework. The coursework is divided between the Department of Industrial and Manufacturing Systems Engineering and the Department of Information Systems and Operations Management. The program includes such courses as:

- Probability and Statistics
- Operations Research
- Production and Inventory Control
- Production Systems Design
- Enterprise Modeling
- Logistics Information Systems
- Logistics Transportation Systems Design
- Logistics Distribution Systems Design
- Business Logistics
- Purchasing and Materials Management
- Supply Chain Management Approved Electives

# Program in Materials Science and Engineering

<http://mse.uta.edu>

Area of Study and Degrees  
Materials Science and Engineering  
M.S., M.Engr., Ph.D.

Master's Degree Plans  
Thesis (M.S.), Thesis Substitute (M.Engr.)  
and Non-Thesis (M.Engr.)

## Interim Director

Roger D. Goolsby  
325 Woolf Hall, 817-272-2398  
goolsby@mae.uta.edu

## Graduate Advisor

Pranesh B. Aswath  
325D Woolf Hall, 817-272-2008  
aswath@uta.edu

## Graduate Faculty Professors

Aswath, Chan, Elsenbaumer, Goolsby, Johnson

## Associate Professor

Kim

## Assistant Professor

Koh

## Professor Emeritus

Wiseman

Graduate faculty from participating departments and programs in the College of Engineering and the College of Science are involved in teaching and supervising materials science and engineering graduate students' research. Specific faculty contacts within these areas include:

**Aerospace Engineering:** Professor Joshi, 215 Woolf Hall, 817-272-3746

**Biomedical Engineering:** Associate Professor Nelson, 225 Engineering Lab,  
817-272-2540

**Chemistry:** Professor Elsenbaumer, 219 Science, 817-272-3171

**Civil Engineering:** Assistant Professor Abolmaali, 425 Nedderman Hall, 817-  
272-3877

**Electrical Engineering:** Assistant Professor Tao, 202C Nanofab, 817-272-5001

**Mechanical Engineering:** Professor Chan, 325G Woolf Hall, 817-272-5638

**Physics:** Professor Weiss, 107D Science, 817-272-2459

Participating faculty of the colleges of Engineering and Science

**Aerospace Engineering:** Joshi

**Biomedical Engineering:** Eberhart, Nelson

**Chemistry:** Dias, Kinsel, Marynick, McDowell, Pomerantz, Rajeshwar, Timmons

**Civil Engineering:** Abolmaali

**Electrical Engineering:** Alavi, Butler, Carter, Celik-Butler, Davis, Kirk, Tao

**Mechanical Engineering:** Chan, Haji-Sheikh, Nomura, Wang

**Physics:** Black, Fry, Koymen, Ray, Sharma, Weiss, West

## Objective

The graduate program in materials science and engineering is designed to provide students with a fundamental understanding of phenomena occurring in materials and their associated chemical, electrical, mechanical, and physical properties. The master's program prepares students for professional careers in materials science and engineering or for additional studies at the doctoral level.

Candidates for a master's or doctoral degree may elect programs emphasizing metals, polymers, ceramics, composite materials, or electronic materials, as well as a number of other areas. Although the program is administered through the College of Engineering, it is broadly interdisciplinary, actively involving faculty in both the College of Science and the College of Engineering. In addition to materials science and engineering courses, applicable courses are in the disciplines of aerospace engineering, biomedical engineering, chemistry, civil engineering, computer science engineering, electrical engineering, mechanical engineering, and physics.

## Admission

### Master's Degree

Applicants for the master's degree who hold a baccalaureate in engineering or science must meet the general requirements of the Graduate School as stated in the section of this catalog entitled "Admission Requirements and Procedures." Applicants not meeting all criteria may be admitted on a provisional or probationary basis.

For applicants with no prior training in engineering or with insufficient undergraduate materials coursework, the same minimum criteria will apply. Additionally, their records will be reviewed in relation to their materials backgrounds, and probationary status with specific remedial work required may be a basis for acceptance of such applicants.

The acceptance of applicants who hold a master's degree in engineering will be based on the above-mentioned minimum criteria and results of graduate work, including the master's thesis.

### Doctoral Degree

Applicants for the doctoral degree must have either a baccalaureate or master's degree in engineering or science and meet all requirements stated above in both graduate and undergraduate work. Students without a master's degree will enter the program as master's candidates and must complete a minimum of 30 graduate semester hours (at least 24 hours of which must be coursework) with distinction prior to advancement to doctoral candidacy. Doctoral candidates shall also demonstrate through previous academic preparation the potential to carry out independent research in materials science and engineering.

## Admissions and Fellowships Criteria

The Materials Science and Engineering Program proposes the following guidelines for unconditional admission to our graduate programs. In evaluating candidates, the preparedness of the student as evidenced by quality and quantity of coursework and the student's previous research experience are emphasized. Recommendations from the MSE faculty, based on firsthand knowledge of the applicant or a faculty member at the applicant's institution, are also very important.

### Unconditional Admission

Use any one of the following options. All options require a GPA of 3.0 in the last 60 hours of undergraduate work as calculated by the Graduate School.

#### Option 1

A satisfactory completion of a Bachelor's degree or equivalent, official transcripts, and GRE scores, and three letters of recommendation. An applicant whose native language is not English must submit a TOEFL score of at least 550. The TSE-A (score of 45 or higher) can be substituted for the TOEFL.

#### Option 2

A satisfactory completion of a Bachelor's degree or equivalent, official transcripts, and a letter of recommendation from a faculty member at the applicant's undergraduate institution, *plus a recommendation for a UTA faculty member who participates in the Materials Science and Engineering Program*. An applicant whose native language is not English must submit a TOEFL score of at least 550. A TSE-A score of 45 or higher can be substituted for the TOEFL. Those who have completed their undergraduate education in English may be *eligible for a TOEFL waiver* based on the recommendation letters.

#### Option 3

A satisfactory completion of a Bachelor's degree or equivalent, official transcripts, and a letter of recommendation from a faculty member at the undergraduate institution, *plus a recommendation from a UTA faculty member who participates in the Materials Science and Engineering Program based on a face-to-face interview and/or direct e-mail contact*.

### Probationary Admission

In rare cases, probationary admission may be granted as the result of a substandard performance on the admission criteria. In this case, the Graduate Advisor will set additional conditions for admission including, but not limited to, additional undergraduate coursework and/or achieving a B or better in the first 12 hours of graduate coursework.

### Provisional Admission

An applicant unable to supply all required documentation prior to the admission deadline but who otherwise appears to meet admission requirements may be granted provisional admission.

### Deferred

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate.

### Denial of Admission

A candidate may be denied admission if they have less than satisfactory performance on a majority (3 or more) of the admission criteria described below:

- GPA of 3.0 as determined by the graduate school.
- GRE (V+Q) of 1050
- Letters of recommendations
- Relevance of the student's background (degree) with respect to MSE curriculum.
- Reputation of the University where the student received his/her undergraduate or graduate education.

### Eligibility for Scholarships/Fellowships

Students that are unconditionally admitted will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on the following criteria:

- The student is admitted with an unconditional status
- Relative standing with respect to other qualified applicants

### Continuation

The Materials Science and Engineering Graduate Program, in fulfillment of its responsibility to graduate highly qualified professional engineers and scientists, has established certain policies and procedures. In addition to the requirements of the Graduate School listed elsewhere in this catalog, to continue in the program each materials science and engineering graduate student must:

- Maintain at least a B (3.0) overall GPA in all coursework, and
- Demonstrate suitability for professional practice.

At such time as questions are raised by materials science and engineering graduate faculty regarding either of the above, the student will be notified and will be given the opportunity to respond to the Committee on Graduate Studies for Materials Science and Engineering. The Committee on Graduate Studies will review the student's performance and make a recommendation concerning the student's eligibility to continue in the program. Appeal of a decision on continuation may be made through normal procedures outlined in the section of this catalog entitled "Grievances Other Than Grades."

## Degree Requirements

### Master's Degrees

**Master of Science in Materials Science and Engineering:** The Master of Science degree is a research-oriented degree in which completion of a thesis is mandatory. The program consists of a minimum of 24 credit hours of coursework and an acceptable thesis (minimum of six credit hours).

**Master of Engineering in Materials Science and Engineering:** The Master of Engineering degree is an engineering practice-oriented program requiring a minimum of 36 credit hours. A maximum of six hours may be a special project. A final program examination is required of all master's degree candidates. Non-thesis degree candidates will fulfill the program examination requirement upon the successful completion of MSE 5192, Master's Comprehensive Examination. Candidates must enroll in MSE 5192 in the semester they intend to graduate.

### Doctor of Philosophy

The Ph.D. degree program involves an interdisciplinary and multidisciplinary approach which requires students to complete a set of Materials Science and Engineering core courses augmented by elective offerings in aerospace engineering, biomedical engineering, chemistry, civil engineering, electrical engineering, materials science, mechanical engineering and physics. The degree is a research degree which requires the candidate successfully to carry out independent research in an area acceptable to the Committee on Graduate Studies for Materials Science and Engineering. A student's research is directed by a faculty member from any of the departments or programs participating in the Materials Science and Engineering Program.

The Ph.D. degree program requires successful completion of the following curriculum components:

1. A minimum of 24 semester hours of graduate coursework is expected for students entering with an appropriate master's degree or, for highly qualified students, a minimum of 42 semester hours of graduate coursework is expected for student's entering with a bachelor's degree, as approved by the Committee on Graduate Studies for Materials Science and Engineering. Additional coursework may be required by the student's doctoral dissertation committee.
2. Four core courses or their equivalent are required for all doctoral students:
  - MSE 5304. Analysis of Materials
  - MSE 5405. Solid State Physics and Thermodynamics of Materials
  - MSE 5312. Mechanical Behavior of Materials
  - MSE 5321. Phase Transformations of Materials
3. One of these two courses are required for all doctoral students:
  - MSE 5345. Ceramic Materials
  - MSE 5347. Polymer Materials Science
4. Three of the following supplemental elective courses must be taken by all doctoral students, as approved by the Committee on Graduate Studies for Materials Science and Engineering.
  - MSE 5310. Dislocation Theory
  - MSE 5314. Fracture Mechanics
  - MSE 5315. Fatigue of Engineering Materials
  - MSE 5335. Integrated Circuit Materials and Processing
  - MSE 5336. Electrical Properties of Materials
  - MSE 5337. Magnetic and Optical Properties of Materials
  - MSE 5345. Ceramic Materials
  - MSE 5346. Contemporary Polymer Chemistry
  - MSE 5347. Polymer Materials Science
  - MSE 5348. Fundamentals of Composites
  - MSE 5349. Advanced Composites
  - MSE 5351. Current Topics in Nanotechnology
  - BME 5332D. Orthopedic Biomaterials
  - BME 5335. Biological Materials, Mechanics and Processes
  - BME 5361D. Biomaterials and Blood Compatibility
  - CHEM 5309. Organic Chemistry I
  - CHEM 5350. Advanced Polymer Chemistry
  - CHEM 5461. Analytical Instrumentation
  - CHEM 6305. Special Topics in Applied Chemistry
  - EE 5340. Semiconductor Device Theory I
  - EE 5343. Integrated Circuit Techniques
  - EE 5349. Topics in Integrated Circuit Technology
  - EE 6342. Advanced Quantum Devices
  - ME 5312. Continuum Mechanics
  - ME 5314. Fracture Mechanics in Structural Design
  - ME 5339. Structural Aspects of Design
  - PHYS 5316. Solid State II
  - PHYS 6302. Methods of Applied Physics II — Computers in Physics
5. Elective courses will be taken by all doctoral students which will allow specialization within a particular academic discipline. Graduate courses in chemistry, physics and engineering will be selected for this purpose in consultation with the student's research advisor, subject to approval by the Committee on Graduate Studies for Materials Science and Engineering.

After completion of the first year's coursework (i.e., core courses), students must satisfactorily complete diagnostic examinations which may be written or oral or written and oral with a supplemental interview with faculty members, as determined by the Committee on Graduate Studies in Materials Science and Engineering.

Upon completion of all or nearly all of the coursework requirements and after having demonstrated research ability through partial completion of dissertation research, a student must satisfactorily complete a comprehensive examination.

The dissertation research will be formulated in conjunction with the student's faculty research advisor who may be associated with any of the following academic disciplines participating in the Materials Science and Engineering Program: aerospace engineering, biomedical engineering, chemistry, civil engineering, electrical engineering, materials science, mechanical engineering, and physics. The dissertation research represents the culmination of the student's academic efforts and is expected to demonstrate original and independent research activity and be a significant contribution to knowledge in the field.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Materials Science and Engineering (MSE)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**5300. INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING (3-0).** Physical, mechanical, electrical and chemical properties of metals, semiconductors, ceramics, polymers and composites, with an emphasis on understanding fundamental issues. Relationships between the processing, micro and macro structure of materials with their properties, such as strength ductility, toughness, fatigue and fracture and creep properties with special emphasis on mechanical properties of metals, polymers, ceramics and composites. Prerequisite: permission of instructor.

**5304. ANALYSIS OF MATERIALS (2-3).** Theoretical understandings and practical applications of various characterization techniques to materials analysis, ranging from x-rays and electron

diffraction, x-ray spectroscopy, and surface topography, are discussed. Practice of these techniques in lab class typically includes SEM spectroscopy, powder diffraction, Laue diffraction, and the double crystal x-ray diffraction. Prerequisite: permission of instructor.

**5405. SOLID STATE PHYSICS AND THERMODYNAMICS OF MATERIALS (4-0).** Application of solid state physics and thermodynamics for fundamental understanding of materials. The solid state physics discusses the crystal lattice, reciprocal lattice, classical description of electrons in the crystal, quantum mechanical description of electrons in the crystal, band theory of electrons and lattice vibrations. Thermodynamics focuses on first, second and third laws of thermodynamics, statistical mechanics and application of thermodynamics for the description of materials in the thermal, chemical and mechanical processes. Prerequisite: permission of instructor.

**5310. DISLOCATION THEORY (3-0).** Theory of dislocations and their reactions and interactions in crystalline materials developed and extended into a basic understanding of mechanical properties of crystalline materials. Prerequisite: permission of instructor.

**5312. MECHANICAL BEHAVIOR OF MATERIALS (3-0).** Concepts of stress and strain, theory of plasticity. Elementary dislocation theory. Deformation of single crystals. Strengthening mechanisms like solid solution strengthening, precipitation hardening, etc. Elementary concepts in fracture mechanics. Microscopic aspects of fracture, fatigue, and creep of materials. Prerequisite: MAE 3321, MSE 5300 or permission of instructor.

**5314. FRACTURE MECHANICS (3-0).** Theory and applications of linear elastic fracture mechanics. Topics include stress analysis of cracks, crack-tip plasticity, fatigue and stress corrosion. Applicability to materials selection, failure analysis and structural reliability reviewed. Prerequisite: permission of instructor.

**5315. FATIGUE OF ENGINEERING MATERIALS (3-0).** Cyclic deformation, fatigue crack initiation and growth in ductile solids. Application of fracture mechanics to fatigue. Mechanisms of crack closure. Variable and multiaxial fatigue and corrosion fatigue. Fatigue of brittle solids. Prerequisite: permission of instructor.

**5321. PHASE TRANSFORMATIONS OF MATERIALS (3-0).** The theory of homogeneous and heterogeneous transformations, nucleation and growth, martensitic transformations, heat treatment and control of microstructure. Prerequisite: MSE 5300, MSE 5305, or permission of instructor.

**5330. CORROSION (3-0).** Quantitative application of electrochemical principles to corrosion reactions. Effects of metallurgical factors and environmental conditions on oxidation, erosion, and cracking discussed along with materials selection. Prerequisite: permission of instructor.

**5335. INTEGRATED CIRCUIT MATERIALS AND PROCESSING (3-0).** Fundamental properties of conductors, semiconductors, insulators, and polymers. Basic device operating principles for the pn junction, MOSFET, and Schottky diode. Materials processing for oxidation, annealing, thin film deposition, wet chemical etching, reactive ion etching, ion implantation, planarization, and photolithography. Prerequisite: permission of instructor.

**5336. ELECTRICAL PROPERTIES OF MATERIALS (3-0).** Advanced discussion of electronic structure, transport mechanisms in metals, semiconductors and superconductors, with applications to materials used in various electronic devices. Prerequisite: MSE 5305 or permission of instructor.

**5337. MAGNETIC AND OPTICAL PROPERTIES OF MATERIALS (3-0).** Classical and quantum mechanical understandings of magnetic and optical properties and phase transition

phenomena. Specific applications of these properties to various devices are discussed. Prerequisite: MSE 5305 or permission of instructor.

**5338. RELIABILITY AND FAILURE OF ELECTRONIC PACKAGING (3-0).** Review of materials for substrate, interconnect, encapsulation and passivation. Types of packaging like insertion, SMT, FCOB, etc. Manufacturing processes and reliability. Failure mechanisms like metallization and interconnect degradation, thermomechanical failure, warpage, fatigue failure, delamination and brittle fracture. Experimental validation methods, including SEM, X-ray, etc. Prerequisites: permission of instructor.

**5341. TRANSMISSION ELECTRON MICROSCOPY IN MATERIALS SCIENCE (3-0).** Crystallography, stereographic projections, and reciprocal lattice. Specimen preparation in transmission electron microscopy. Dynamical and kinematical theories of electron diffraction. Interpretation of diffraction patterns and transmission electron micrographs. Use of the transmission electron microscope. Prerequisites: MSE 5304, MSE 5305 or permission of instructor.

**5345. CERAMIC MATERIALS (3-0).** Crystal structure of ceramic materials. Phase equilibria in ceramic materials. The processing of ceramics and ceramic matrix composites. Strengthening mechanisms and mechanical properties of ceramics and ceramic matrix composites including flexure, tensile, fracture toughness, fatigue, and creep. Prerequisites: MSE 5300 or permission of instructor.

**5346. CONTEMPORARY POLYMER CHEMISTRY (3-0).** Polymer synthesis and reactions. Principles of polymerization including thermodynamics and kinetic considerations. Physical characterizations including determinations of absolute and relative molecular weights, morphology, and glass transitions. Relationships between macromolecular structure, properties, and uses of polymeric materials. Also offered as CHEM 5350. Prerequisites: CHEM 2321 and CHEM 2322 or permission of instructor.

**5347. POLYMER MATERIALS SCIENCE (3-0).** Intermolecular forces of attraction in high polymers, polymer synthesis, morphology and order in crystalline polymers, mechanics of amorphous polymers, time-dependent mechanical behavior, transitional phenomena, mechanical behavior of semicrystalline polymers. Prerequisite: MSE 5300 or permission of instructor.

**5348. FUNDAMENTALS OF COMPOSITES (3-0).** Fundamental mechanics concepts of fiber-reinforced composites; relationships between the properties of the constituents and those of the unit composite ply; lamina and laminate anisotropic behavior; structural characteristics of A, B, and D matrices; lamination theory; strength criteria; hygrothermal analysis; interlaminar stress analysis. Also offered as ME 5348 and AE 5315. Prerequisite: permission of instructor.

**5349. ADVANCED COMPOSITES (3-0).** Review of current state-of-the-art applications of composites; composite structural analysis; structural properties; damage characterization and failure mechanism; stiffness loss due to damage; notched sensitivity; delamination; impact; fatigue characteristics; composite materials testing; materials allowables; characteristics of composite joints. Also offered as AE 5325 and ME 5349. Prerequisites: ME 5348 or MSE 5348 or AE 5315 or permission of instructor.

**5350. EXPERIMENTAL CHARACTERIZATION OF COMPOSITES (2-3).** Laminate processing, NDI, and physical characterization procedures; thermal analysis methods for composites; composite materials tensile, compressive, shear, flexure, thermoelastic, and interlaminar fracture characterizations. Prerequisite: MSE 5348, ME 5348, or AE 5315 or concurrent enrollment or permission of instructor.

**5351. CURRENT TOPICS IN NANOTECHNOLOGY (3-0).**

Review and discussion of the latest advances in the field of nanoscale science and technology. Topics include molecular electronics, chemical and biological sensors, synthesis of nanoscale materials, carbon nanotubes, nanowires, nanoparticles, atom-wires, self-assembled monolayers, nanoscale composite materials and techniques for observing and manipulating atoms and molecules. Prerequisite: permission of instructor.

**5141. TRANSMISSION ELECTRON MICROSCOPY LAB (0-1).**

Specimen preparation. Operation of the transmission electron microscope. Beam alignment and rotation calibration. Bright field and dark field imaging. Weak beam imaging. Examination of defects. Prerequisites: MSE 5300, MSE 5304, and permission of instructor.

Co-requisite: MSE 5341.

**5190, 5290, 5390. SPECIAL TOPICS IN MATERIALS SCIENCE AND ENGINEERING.** May be repeated for credit when topic changes.

Prerequisite: Consent of instructor.

**5191, 5291, 5391. ADVANCED STUDIES IN MATERIALS SCIENCE AND ENGINEERING.**

Topics selected from various areas of materials science and engineering. Work performed as a thesis substitute normally will be accomplished under the course number 5391, with prior approval of the Committee on Graduate Studies. Graded R.

**5192. MASTER'S COMPREHENSIVE EXAMINATION.** Directed study, consultation, and comprehensive examination over coursework leading to the Master of Engineering degree in Materials Science and Engineering. Required of all Master of Engineering students in the semester they plan to graduate. Graded P/F/R.

**5193. SEMINAR IN MATERIALS SCIENCE AND ENGINEERING (1-0).** Selected topics in materials science and engineering presented by faculty, students, and invited lecturers.

**5398, 5698, 5998. THESIS.** 5398 graded R/F only; 5698 and 5998 graded P/F/R. Prerequisite: approval of Graduate Advisor.

**6196, 6396, 6696, 6996. MSE INTERNSHIP.** For students participating in internship programs. May be repeated for credit. Prerequisite: approval of Graduate Advisor. Graded P/F/R.

**6197, 6397. ADVANCED STUDIES IN MATERIALS SCIENCE AND ENGINEERING.** May be repeated for credit. Prerequisite: approval of Graduate Advisor. Graded R.

**6198-6998. RESEARCH IN MATERIALS SCIENCE AND ENGINEERING.** Individually approved research projects in materials science and engineering. May be repeated for credit. Graded P/F/R.

**6399, 6699, 6999. DISSERTATION.** 6399 and 6699 graded R/F only; 6999 graded P/F/R.



## Objectives

A unique and dynamic program leading to the Doctor of Philosophy degree in the mathematical sciences will aim at both real and demonstrated competency on the part of the student over material from various branches of mathematical sciences. The Doctor of Philosophy degree in Mathematical Sciences provides a program of study that may be tailored to meet the needs of those interested in applied or academic careers. This unique program allows students to pursue topics ranging from traditional mathematics studies to applied and theoretical problems in Biology, Chemistry, Computer Science, Geology, Information Systems, Physics and Psychology. The nature of the dissertation will range from research in mathematics to the discovery and testing of mathematical models for analyzing given problems in sciences and in locating and developing mathematical and computational techniques for deducing the properties of these models so as to solve these problems both effectively and efficiently. Such dissertations will be concerned with research problems from such areas as pure mathematics, applied mathematics, probability, statistics, computer science, biology, biometry, chemistry, engineering, geology, information systems, physics, management sciences, and operational sciences.

## Degree Requirements

Upon entering Graduate School, the student has the responsibility to consult with the Graduate Advisor in the appropriate department on a continuing basis.

The student must satisfactorily complete all deficiency courses.

In addition to the Graduate School requirements for the Doctor of Philosophy degree, students must satisfactorily demonstrate competence in 30 graduate hours of core areas as specified by the Committee on Graduate Studies for Mathematical Sciences (CGSMS). Furthermore, the student must complete additional graduate coursework beyond these core areas as approved by the Committee on Graduate Studies for Mathematical Sciences.

Of the 30 hours of core courses, each student is expected to complete a minimum of 15 graduate hours in the Mathematics Department. However, the 30 hours of core courses will vary depending on the student's area of interest and background and will be determined on an individual basis by the student's supervisory committee subject to approval by the Committee on Graduate Studies for Mathematical Sciences.

Normally each candidate is required to be in residence as a full-time student for one year or three consecutive semesters including summer term. Exceptions to this requirement may be approved if the student has demonstrated continuous degree progress while working as a part-time student.

In addition to meeting the specific requirements listed above, each student's program of work must be approved by the Dean of Graduate Studies.

Ordinarily, after 40 semester hours of graduate work and with the approval of the Committee on Graduate Studies for Mathematical Sciences, a comprehensive examination (usually oral) will be administered. To pass, the student must exhibit outstanding intellectual capacity and sufficient knowledge to continue doctoral studies and a program of research. A student who has failed the comprehensive

## Program in Mathematical Sciences

[www.uta.edu/math](http://www.uta.edu/math)

**Area of Study and Degree**  
**Mathematical Sciences**  
Ph.D.

**Graduate Advisors**  
**Biology**

Daniel Formanowicz  
B31 or 349 Life Science, 817-272-2422

**Chemistry**

Z.A. Schelly  
238 Science Hall, 817-272-3803

**Computer Science**

Ramesh Yeraballi  
333 Nedderman Hall, 817-272-5128

**Geology**

William Balsam  
233A Geoscience, 817-272-2987

**Information Systems and Management Sciences**

R.C. Baker  
601 Business, 817-272-3547

**Mathematics**

Contact the Mathematics Department  
478 Pickard Hall, 817-272-3261

**Physics**

Asok Ray  
102E Science Hall, 817-272-2503

**Psychology**

David S. Gorfein  
402 Life Science, 817-272-3200

**Graduate Faculty**

Appropriate Graduate Faculty of various branches of mathematical sciences which include Biology, Chemistry, Computer Science, Geology, Information Systems, Mathematics, Physics and Psychology

examination may be allowed a single re-examination by the Committee on Graduate Studies for Mathematical Sciences on the recommendation of the examining committee. The student must be enrolled in the Graduate School at the time of the comprehensive examination.

The grade of R (research in progress) is a permanent grade; it cannot be changed by completing course requirements in a later semester. To receive credit for an R-graded course, the student must continue to enroll in the course until a passing grade is received.

An incomplete grade (the grade of X) cannot be given in a course that is graded R, nor can the grade of R be given in a course that is graded X. To receive credit for a course in which the student earned an X, the student must complete the course requirements. A grade of X cannot be changed by enrolling again in the course in which an X was earned. At the discretion of the instructor, a final grade can be assigned through a change of grade form.

Three-hour thesis courses and three- and six-hour dissertation courses are graded R/F/W only (except social work thesis courses). The grade of P (required for degree completion for students enrolled in thesis or dissertation programs) can be earned only in six- or nine-hour thesis courses and nine-hour dissertation courses. In the course listings below, R-graded courses are designated either "Graded P/F/R" or "Graded R." Occasionally, the valid grades for a course change. Students should consult the appropriate Graduate Advisor or instructor for valid grade information for particular courses. (See also the sections titled "R" Grade, Credit for Research, Internship, Thesis or Dissertation Courses and Incomplete Grade in this catalog.)

## Mathematical Sciences (MSCI)

Course fee information is published in the online Student Schedule of Classes at [www.uta.edu/schedule](http://www.uta.edu/schedule). Please refer to this Web site for a detailed listing of specific course fees.

**6399,6699,6999. DISSERTATION.** 6399 and 6699 graded R/F only; 6999 graded P/F/R. Prerequisite: admission to candidacy for the Doctor of Philosophy degree in mathematical science.

# Graduate Faculty

(Year in parentheses indicates year of initial employment to the faculty of The University of Texas at Arlington.)

- ABLES, AMY M.**, Assistant Professor of Kinesiology (2003). B.S., The University of Charleston, 1994; M.S., Texas Woman's University, 2000; Ph.D., 2003.
- ABOLMAALI, ALI**, Assistant Professor in Civil and Environmental Engineering (2001). B.S., University of Oklahoma, 1980; M.S., 1984; Ph.D., 1999.
- ADAM, THOMAS**, Assistant Professor of History (2001). M.A., University of Leipzig, 1994; Ph.D., 1998.
- ADAMS, PHYLLIS**, Assistant Clinical Professor of Nursing (1995). B.S.N., Dillard University, 1969; M.S.N., Ohio State University, 1972; Ed.D., Texas Southern University, 1989. Registered Nurse, Certified Family Nurse Practitioner.
- AGGER, BEN**, Professor of Sociology (1994). B.A., York University, 1973; M.A., 1974; Ph.D., University of Toronto, 1976.
- AGONAFER, DEREJE**, Professor in Mechanical and Aerospace Engineering (1999). B.S., University of Colorado, 1972; M.S., Howard University, 1978; Ph.D., 1984.
- AHMAD, ISHFAQ**, Professor in Computer Science and Engineering (2002). B.S.E.E., University of Engineering and Technology, Lahore, Pakistan, 1985; M.S., Syracuse University, 1987; Ph.D., 1992.
- ALAIMO, STACY**, Associate Professor of English (1994). B.A., Gustavus Adolphus College, 1985; M.A., University of Wisconsin, 1986; Ph.D., University of Illinois, 1994.
- ALAVI, KAMBIZ**, Professor in Electrical Engineering (1988). B.S., Massachusetts Institute of Technology, 1972; M.S., 1977; Ph.D., 1981.
- ALCALA, ANGELO L.**, Assistant Professor of Education (1999). B.B.A., University of North Texas, 1988; M.Ed., 1992; Ph.D., 1999.
- AMACHER, RYAN C.**, Professor of Economics (1992). A.B., Ripon College, 1967; Ph.D., University of Virginia, 1971.
- AMSTER, HARRIETT**, Professor of Psychology (1973). A.B., Bryn Mawr College, 1950; M.A., Clark University, 1954; Ph.D., 1957.
- ANDERS, EVAN M.**, Associate Professor of History (1982). B.A., The University of Texas at Austin, 1968; M.A., 1970; Ph.D., 1978.
- ANDERSON, ANDY**, Professor and Chair of the Department of Art and Art History (1991). B.A., Florida State University, 1968; M.A., 1971.
- ANDERSON, CHERYL**, Assistant Professor of Nursing (1991). Diploma in Nursing, Scott & White Memorial Hospital School of Nursing, 1969; B.S., San Diego State University, 1974; M.N., University of California at Los Angeles, 1976; Ph.D., Texas Woman's University, 1985. Registered Nurse.
- ANDERSON, DALE A.**, Professor of Aerospace Engineering (1984). B.S., St. Louis University, 1957; M.S., Iowa State University, 1959; Ph.D., 1964. Professional Engineer.
- ANDRESEN, EARL**, Professor of Communication (1991). A.B., Columbia College, 1969; A.M., University of Illinois, 1972; Ph.D., Texas A&M University, 1988.
- ANJOMANI, ARDESHIR**, Professor of City and Regional Planning (1979). M.Arch., University of Tehran, Iran, 1968; M. Planning, University of Southern California, 1976; Ph.D., 1979.
- APILADO, VINCENT P.**, Professor of Finance and Real Estate (1980). B.S., University of Portland, 1959; M.B.A., University of Oregon, 1966; Ph.D., University of Michigan, 1970.
- ARDEKANI, SIAMAK A.**, Professor and Chair of the Department of Civil and Environmental Engineering (1989). B.S., The University of Texas at Austin, 1980; M.S., 1981; Ph.D., 1984. Professional Engineer.
- ARNOTT, HOWARD J.**, Jenkins Garrett Professor of Biology (1974). A.B., University of Southern California, 1952; M.S., 1953; Ph.D., University of California at Berkeley, 1958.
- ARVIDSON, ENID**, Associate Professor of City and Regional Planning (1993). B.A., University of California at Santa Barbara, 1979; M.R.P., University of Massachusetts, 1985; Ph.D., 1996.
- ASLANDOGAN, ALP**, Assistant Professor in Computer Science and Engineering (2001). B.S., Bogazici University, Istanbul, Turkey, 1989; M.S., Case Western Reserve University, 1995; Ph.D., University of Illinois at Chicago, 2001.
- ASWATH, PRANESH B.**, Professor in Mechanical Engineering and in Materials Science and Engineering (1990). B.S., St. Joseph's College, Bangalore University, 1982; B.E., Indian Institute of Science, Bangalore, India, 1985; M.S., Brown University, 1987; Ph.D., 1990.
- AWASTHI, SANJAY**, Professor of Chemistry and Biochemistry (1999). B.A., The University of Texas at Austin, 1982; M.D., The University of Texas Southwestern Medical School at Dallas, 1986.
- BACON, JOHN D.**, Professor of Biology (1975). B.S., Sul Ross State University, 1966; M.S., Texas A&M University, 1970; Ph.D., The University of Texas at Austin, 1975.
- BAKER, JOY DON**, Assistant Clinical Professor of Nursing (2000). B.S.N., Oklahoma Baptist University, 1974; M.S.N., Oklahoma University, 1982; M.B.A., Nova University, 1985; Ph.D., The Fielding Institute, 2000. Registered Nurse.
- BAKER, LEWIS T.**, Associate Professor of Humanities (1985). B.A., The University of Texas at Austin, 1975; M.A., Louisiana State University, 1977; Ph.D., 1981.
- BAKER, R.C.**, Professor and Chair of the Department of Information Systems and Operations Management (1972). B.A., The University of Texas at Austin, 1964; Ph.D., Texas A&M University, 1971.
- BALSAM, WILLIAM L.**, Professor of Geology (1984). B.S., Saint Lawrence University, 1967; M.S., Brown University, 1969; Ph.D., 1973.
- BARR, WENDY**, Associate Clinical Professor (1986). B.S.N., Loyola University, 1969; M.S.N., University of Massachusetts, 1976; Ph.D., Texas Woman's University, 1985. Registered Nurse.
- BARRETT, EDITH J.**, Associate Professor of Urban Affairs (1996). B.S., Baylor University, 1982; M.S., Northwestern University, 1984; Ph.D., 1987.

## FACULTY

- BARRETT, MARJIE C.**, Associate Professor of Social Work (1978). B.A., Texas Christian University, 1959; M.S.S.W., The University of Texas at Austin, 1962; Ph.D., Texas Woman's University, 1978.
- BASHAM, RANDALL E.**, Assistant Professor of Social Work (2002). B.A., West Liberty State College, 1977; M.S.W., West Virginia University, 1979; Ph.D., The University of Tennessee, Knoxville, 2002.
- BASTIEN, JOSEPH W.**, Professor of Anthropology (1977). B.A., Maryknoll College, 1958; M.E., State University of New York, 1963; M.D., 1963; M.A., Cornell University, 1971; Ph.D., 1973.
- BAUM, EDWARD M.**, Professor of Architecture (1987). A.B., Harvard College, 1960; M.Arch., Harvard University, 1964. Registered Architect.
- BECKHAM, SUSAN G.**, Associate Professor of Kinesiology (1995). B.S., Southwest Missouri State University, 1980; M.S., Oklahoma State University, 1984; Ph.D., 1991.
- BEHBEHANI, KHOSROW**, Professor and Director of the Biomedical Engineering Program (1985). B.S., Louisiana State University, 1973; M.S., Georgia Institute of Technology, 1975; Ph.D., University of Toledo, 1979.
- BELL, MYRTLE P.**, Associate Professor of Management (1996). B.B.A., University of Notre Dame, 1981; M.B.A., Louisiana State University, 1982; Ph.D., The University of Texas at Arlington, 1996.
- BELLION, EDWARD**, Professor and Interim Chair of the Department of Chemistry and Biochemistry (1970). B.Sc., University of Leeds, 1965; Ph.D., 1968.
- BERNARD, DAVID**, Associate Professor of Biology (1995). B.S., Howard University, 1983; Ph.D., 1992.
- BERNSTEIN, IRA H.**, Professor of Psychology (1964). B.A., University of Michigan, 1959; M.A., Vanderbilt University, 1961; Ph.D., 1963.
- BERTRAN, ESTHER**, Assistant Professor of Biology (2003). B.S., Universitat Autònoma de Barcelona, 1990; M.S., 1992; Ph.D., 1996.
- BING, ROBERT L. III**, Associate Professor and Chair of the Department of Criminology and Criminal Justice (1991). B.A., College of the Holy Cross, 1975; M.S., Florida State University, 1976; Ph.D., 1987.
- BLACK, TRUMAN D.**, Professor of Physics (1965). B.S., University of Houston, 1959; M.A., Rice University, 1962; Ph.D., 1964.
- BOARDMAN, BONNIE S.**, Assistant Professor of Industrial and Manufacturing Systems Engineering (1999). B.S., University of Arkansas, 1991; M.S., Texas A&M University, 1992; Ph.D., University of Arkansas, 1997.
- BOGLE, JAMES M.**, Associate Professor of Music (1995). B.M., University of North Texas, 1986; M.M., 1989; D.M.A., 2000.
- BOND, MARY LOU**, George W. and Hazel M. Jay Professor of Nursing (1989). B.S.N., Texas Christian University, 1962; M.N., University of Pittsburgh, 1973; Ph.D., The University of Texas at Austin, 1984. Registered Nurse.
- BOOTHE, KENNETH A.**, Adjunct Assistant Professor of Linguistics (1995). B.A., University of Akron, 1975; M.A., The University of Texas at Arlington, 1987.
- BOSWELL, BILL W.**, Associate Professor of Architecture (1975). B.Arch., The University of Texas at Austin, 1969; M.Arch and Urban Design, University of Colorado, 1972. Registered Architect.
- BOWLING, ANDREW C.**, Adjunct Assistant Professor of Linguistics (1993). B.A., University of Cincinnati, 1957; Ph.D., Brandeis University, 1962.
- BRADSHAW, DENNY**, Associate Professor and Chair of the Department of Philosophy and Humanities (1992). B.A., Mankato State University, 1982; Ph.D., University of Iowa, 1988.
- BRAINERD, CHARLES J.**, Professor of Psychology (2004). B.S., Michigan State University, 1966; M.A., 1968; Ph.D., 1970.
- BRANDT, ANDREW G.**, Associate Professor of Physics (1999). B.S., College of William and Mary, 1985; M.S., University of California at Los Angeles, 1988; Ph.D., 1992.
- BREDOW, JONATHAN W.**, Assistant Professor in Electrical Engineering (1989). B.S., Kansas State University, 1977; M.S., Iowa State University, 1980; Ph.D., University of Kansas, 1989.
- BRIGHT, ELISE M.**, Professor of Urban Affairs (1988). B.A., University of Arizona, 1972; M.A., Harvard University, 1975; Ph.D., Texas A&M University, 1980.
- BROWN, KATHRYN**, Assistant Professor of Anthropology (2003). B.A., Southwest Texas State University, 1987; M.A., The University of Texas at San Antonio, 1995; M.A., Southern Methodist University, 2001; Ph.D., 2003.
- BRUCE, LES P.**, Adjunct Assistant Professor of Linguistics (1994). B.A., John Brown University, 1967; M.A., Columbia International University, 1970; Ph.D., Australian National University, 1980.
- BUISSERET, DAVID**, Jenkins and Virginia Garrett Professor of Greater Southwest Studies and the History of Cartography (1995). B.A., Cambridge University, 1958; Ph.D., 1961.
- BURGESS-JACKSON, KEITH**, Associate Professor of Philosophy (1989). A.B., University of Michigan, 1979; M.A., Wayne State University, 1983; J.D., 1983; M.A., University of Arizona, 1985; Ph.D., 1989.
- BURKHALTER, SARAH B.**, Assistant Professor of Education (2001). B.A., The University of Texas at San Antonio, 1976; M.A., The University of Texas at Austin, 1982; Ph.D., 1997.
- BURLESON, MARK L.**, Assistant Professor of Biology (1997). B.S., The University of Texas at Arlington, 1983; M.S., 1986; Ph.D., University of British Columbia, 1991.
- BURNS, NANCY**, Jenkins Garrett Professor of Nursing (1976). B.S., Texas Christian University, 1957; M.S.N., Texas Woman's University, 1974; Ph.D., 1981. Registered Nurse.
- BURQUEST, DONALD A.**, Associate Professor of Linguistics (1975). B.A., Wheaton College, 1961; M.A., University of California at Los Angeles, 1965; Ph.D., 1973.
- BUTLER, DONALD P.**, Professor in Electrical Engineering (2002). B.A.Sc., University of Toronto, 1980; M.S., University of Rochester, 1981; Ph.D., 1986.
- BUTTERS, ROGER**, Assistant Professor of Economics (2003). B.A., Brigham Young University, 1994; M.S., 1996; M.A., University of California, Davis, 2000; Ph.D., 2003.

- CALLICUTT, JAMES W.**, Professor of Social Work (1968). B.S., Memphis State College, 1951; M.S.S.W., University of Tennessee, 1958; Ph.D., Brandeis University, 1969.
- CAMPBELL, JONATHAN A.**, Professor and Chair of the Department of Biology (1983). B.A., University of Mississippi, 1969; M.A., The University of Texas at Arlington, 1977; Ph.D., University of Kansas, 1982.
- CANADAY, KATHLYN Y.**, Assistant Professor of Education (1998). B.S., East Texas State University, 1975; M.S., 1980; Ph.D., University of North Texas, 1991.
- CANNON, ALAN R.**, Assistant Professor of Information Systems and Operations Management (2003). B.A., Clemson University, 1984; M.B.A., 1995; Ph.D., 1999.
- CARLSON, SUSAN**, Clinical Instructor of Nursing (1977). B.S.N., Loretto Heights College, 1982; M.S.N., Mississippi University for Women, 1984. Ph.D., University of San Diego, 2004. Registered Nurse, Certified Family Nurse Practitioner.
- CARROLL, BILL D.**, Professor of Computer Science and Engineering and Dean of the College of Engineering (1981). B.S., The University of Texas at Austin, 1964; M.S., 1966; Ph.D., 1969. Professional Engineer.
- CARTER, RONALD L.**, Professor in Electrical Engineering (1979). B.S., Iowa State University, 1962; M.S., 1964; Ph.D., Michigan State University, 1971.
- CASON, CAROLYN L.**, Professor and Associate Dean of the School of Nursing (1997). B.S.N., The University of Texas Medical Branch, 1967; M.S.N., The University of Texas at Austin, 1972; Ph.D., 1972. Registered Nurse.
- CASPER, WENDY J.**, Assistant Professor of Management (2004). B.S., Penn State University, 1989; M.A., George Mason University, 1996; Ph.D., 2000.
- CAWTHON, ELISABETH A.**, Associate Professor of History (1988). B.A., Louisiana Tech University, 1978; M.A., University of Virginia, 1981; Ph.D., 1985.
- CELIK-BUTLER, ZEYNEP**, Professor in Electrical Engineering (2002). B.S., Bogazici University, 1982; M.S., University of Rochester, 1984; Ph.D., 1987.
- CEREIJO, MARIA VICTORIA PEREZ**, Assistant Professor of Communication (2001). B.A., University of Northern Iowa, 1984; M.S., Texas A&M University, 1985; Ph.D., 1999.
- CHAKRAVARTHY, SHARMA**, Professor in Computer Science and Engineering (1999). B.S., Bangalore University, 1970; B.E., Indian Institute of Science, 1973; M.Tech., Indian Institute of Technology, Bombay, 1975; M.S., University of Maryland, 1981; Ph.D., 1985.
- CHAN, WEN S.**, Professor in Mechanical Engineering (1988). B.S., National Cheng Kung University, 1969; M.S., Tennessee Technological University, 1972; Ph.D., Purdue University, 1979.
- CHAVE, GEORGE B.**, Associate Professor of Music (1992). B.M., Syracuse University, 1981; M.M., State University of New York at Binghamton, 1983; Ph.D., Washington University, 1988.
- CHE, HAO**, Assistant Professor in Computer Science and Engineering (2002). B.S., Nanjing University, 1984; M.S., The University of Texas at Arlington, 1994; Ph.D., The University of Texas at Austin, 1998.
- CHEN, HUA-MEI**, Assistant Professor in Computer Science and Engineering (2002). B.S., National Chiao-Tung University, 1991; M.S., Syracuse University, 2000; Ph.D., 2002.
- CHEN, MO-SHING**, Professor of Electrical Engineering (1962). B.S., National Taiwan University, 1954; M.S., The University of Texas at Austin, 1958; Ph.D., 1962. Professional Engineer.
- CHEN, VICTORIA**, Associate Professor in Industrial and Manufacturing Systems Engineering (2002). B.S., The Johns Hopkins University, 1988; M.S., Cornell University, 1990; Ph.D., 1993.
- CHIAO, JUNG-CHIH**, Associate Professor in Electrical Engineering (2002). B.S., National Taiwan University, 1988; M.S., California Institute of Technology, 1991; Ph.D., 1995.
- CHIASSON, CHARLES C.**, Associate Professor of Classical Studies (1983). B.A., Yale University, 1974; Ph.D., 1979.
- CHIPPINDALE, PAUL T.**, Associate Professor of Biology (1996). B.S., University of Guelph, 1986; M.S., University of Toronto, 1990; Ph.D., The University of Texas at Austin, 1995.
- CHOI, JINNY**, Assistant Professor of Spanish (1998). B.A., The University of Texas at Arlington, 1989; M.A., University of California at Irvine, 1992; Ph.D., Georgetown University, 1998.
- CHRISTIE, THOMAS B.**, Assistant Professor of Communication (2001). B.A., Northeast Louisiana University, 1975; M.A., Webster University, 1981; M.S., Florida State University, 1986; Ph.D., University of North Carolina, 1993.
- CHRZANOWSKI, THOMAS H.**, Professor of Biology (1981). B.A., Bloomfield College, 1974; M.S., University of South Carolina, 1976; Ph.D., 1981.
- CHUONG, CHARLES**, Professor in Biomedical Engineering (1985). B.S., Cheng-Kung University, 1972; M.S., University of California at San Diego, 1977; Ph.D., 1981.
- CHWIAKOWSKI, MICHAEL P.**, Associate Professor in Electrical Engineering (1986). M.S., Warsaw Technical University, 1978; Ph.D., 1982.
- CICHOCK, MARK A.**, Professor of Political Science (1985). B.S., University of Wisconsin-Stevens Point, 1976; M.A., University of South Carolina, 1979; Ph.D., 1983.
- CLARK, ANDREW**, Assistant Professor of Communication (2003). B.A., Indiana University-Purdue University, 1997; M.A.M.C., University of Florida, 2000; Ph.D., 2003.
- CLARK, JILL**, Associate Professor of Political Science (1978). B.S., Iowa State University, 1965; M.S., University of Wisconsin in Milwaukee, 1971; Ph.D., 1974.
- COBB, NORMAN H.**, Associate Professor of Social Work (1989). B.A., Texas Tech University, 1967; M.Div., St. Paul School of Theology, 1970; M.S.S.W., The University of Texas at Arlington, 1979; Ph.D., University of California at Berkeley, 1986.
- COHEN, PHILIP G.**, Professor of English and Dean of Graduate Studies (1986). B.S., American University, 1976; M.A., University of Southern California, 1978; Ph.D., University of Delaware, 1984.
- COLE, RICHARD L.**, Professor of Urban Affairs and Dean of the School of Urban and Public Affairs (1980). B.A., University of North Texas, 1967; M.A., 1968; Ph.D., Purdue University, 1973.

## FACULTY

- COLE, STEPHANIE**, Associate Professor of History (1996). B.A., The University of the South, 1984; M.A., University of Florida, 1988; Ph.D., 1994.
- COLLIER-TENNISON, SHANNON**, Assistant Professor of Social Work (2002). B.A., Hendrix College, 1991; M.S.W., George Warren Brown, 1994; Ph.D., 2002.
- CONKLIN, SCOTT A.**, Assistant Professor of Music (2002). B.M., Cleveland Institute of Music, 1997; M.M., University of Michigan, 1999; D.M.A., 2002.
- COOK, DIANE J.**, Professor in Computer Science and Engineering (1992). B.S., Wheaton College, 1985; M.S., University of Illinois at Urbana-Champaign, 1987; Ph.D., 1990.
- CORDERO-EPPERSON, MINERVA**, Associate Professor of Mathematics (2001). B.S., University of Puerto Rico, 1981; M.A., University of California at Berkeley, 1983; Ph.D., University of Iowa, 1989.
- CORLEY, H.W.**, Professor of Industrial and Manufacturing Systems Engineering (1971). B.S., Georgia Institute of Technology, 1966; M.S., 1968; Ph.D., University of Florida, 1971; Ph.D., The University of Texas at Arlington, 1997. Professional Engineer.
- CORNEHLS, JAMES V.**, Professor of Urban Affairs (1970). B.A., University of the Americas, 1961; Ph.D., The University of Texas at Austin, 1965; J.D., Southern Methodist University, 1982.
- COURTNEY, HARLEY M.**, Professor of Accounting (1970). B.B.A., Lamar University, 1955; M.B.A., Texas A&M University, 1961; Ph.D., University of Illinois, 1966. CPA.
- COURTNEY, MAUREEN (RENI)**, Associate Professor of Nursing (1980). B.S., Texas Woman's University, 1970; M.S., 1974; Ph.D., 1978. Registered Nurse, Certified Family Nurse Practitioner.
- CRAMER, JOEL T.**, Assistant Professor of Kinesiology (2003). B.A., Creighton University, 1997; M.S., University of Nebraska, 2001; Ph.D., 2003.
- CRICK, REX E.**, Professor of Geology (1979). B.A., University of Kansas, 1973; M.S., 1976; Ph.D., University of Rochester, 1978.
- CROSBY, ERNEST C.**, Associate Professor of Civil and Environmental Engineering (1979). B.E., Memphis State University, 1969; M.S., 1974; Ph.D., University of Tennessee, 1979. Professional Engineer.
- CROW, MARY LYNN**, Professor of Education (1970). B.A., Texas Christian University, 1956; M.Ed., 1967; Ph.D., University of North Texas, 1970.
- CROWDER, WILLIAM J.**, Associate Professor of Economics (1992). B.S., Arizona State University, 1987; Ph.D., 1992.
- CROWELL, THOMAS H.**, Adjunct Assistant Professor of Linguistics (1982). M.A., University of Michigan, 1967; M.A., Cornell University, 1976; Ph.D., 1979.
- CUNTZ, MANFRED**, Assistant Professor of Physics (2001). B.S., University of Heidelberg, 1980; M.S., 1985; Ph.D., 1988.
- DANAHAY, MARTIN A.**, Professor of English (1996). B.A., Cambridge University, 1981; M.A., 1985; Ph.D., Brandeis University, 1987.
- DANGEL, RICHARD F.**, Professor of Social Work (1977). B.A., Michigan State University, 1971; M.S.W., University of Michigan, 1973; Ph.D., University of Kansas, 1978.
- DAS, SAJAL K.**, Professor in Computer Science and Engineering (1999). B.S., University of Calcutta, 1980; B. Tech., 1983; M.S., Indian Institute of Science, 1984; Ph.D., University of Central Florida, 1988.
- DAVIS, RUTH A.**, Associate Professor of Education and Chair of the Department of Curriculum and Instruction (2001). B.S., Texas Technological University, 1968; M.A., George Washington University, 1971; Ph.D., University of North Texas, 1990.
- DAVIS, TIMOTHY C.**, Clinical Instructor (2002). B.S.N., The University of Texas Medical Branch at Galveston, 1992; M.S.N., The University of Texas at Arlington, 1998. Registered Nurse, Pediatric Nurse Practitioner.
- DAVIS, W. ALAN**, Associate Professor in Electrical Engineering (1983). B.S., University of Michigan, 1963; M.S., 1964; Ph.D., 1971.
- DE, KAUSHIK**, Professor of Physics (1993). B.A., M.A., City University of New York, 1981; Sc.M., Brown University, 1982; Ph.D., 1988.
- DEEN, REBECCA E.**, Associate Professor of Political Science (1997). B.A., Denison University, 1992; M.A., Ohio State University, 1995; Ph.D., 1997.
- DEL CARMEN, ALEJANDRO**, Assistant Professor of Criminology and Criminal Justice (1996). B.S., Florida International University, 1991; M.S., Florida State University, 1993; Ph.D., 1997.
- DEPKEN, CRAIG A.**, Associate Professor of Economics (1996). A.B., University of Georgia, 1991; Ph.D., 1996.
- DEVARAJAN, VENKAT**, Professor in Electrical Engineering (1990). B.S., Indian Institute of Technology, 1973; M.S., 1975; Ph.D., The University of Texas at Arlington, 1979.
- DIAS, RASIKA**, Professor of Chemistry (1992). B.Sc., University of Peradeniya, Sri Lanka, 1983; Ph.D., University of California, Davis, 1988.
- DIAZ, HECTOR L.**, Associate Professor of Social Work (2000). B.A., Antillean College, 1978; M.S.S.A., Case Western Reserve University, 1981; Ph.D., University of Illinois at Chicago, 1995.
- DICKINSON, ROGER A.**, Professor of Marketing (1975). A.B., Williams College, 1951; M.B.A., University of California at Los Angeles, 1955; Ph.D., Columbia University, 1967.
- DIEHL, LON G.**, Adjunct Assistant Professor of Linguistics (1991). B.A., Indiana University, 1973; M.A., 1977; Ph.D., 1981.
- DILLON, WILLIAM E.**, Associate Professor of Electrical Engineering (1971). B.S., Texas A&M University, 1965; M.S., The University of Texas at Arlington, 1969; Ph.D., 1972. Professional Engineer.
- DILTZ, DAVID**, Professor and Chair of the Department of Finance and Real Estate (1987). B.S., Purdue University, 1976; M.S., University of Illinois, 1978; Ph.D., 1980.
- DOBBS, RHONDA**, Assistant Professor of Criminology and Criminal Justice (2004). B.A., The University of Texas at Austin, 1993; M.S., Virginia Polytechnic Institute and State University, 1996; Ph.D., Florida State University, 2004.
- DOGAN, ATILLA**, Assistant Professor of Aerospace Engineering (2002). B.S., Istanbul Technical University, 1991; M.S., 1994; M.S., University of Michigan, 1998; Ph.D., 2000.

- DRAGAN, IRINEL**, Professor of Mathematics (1984). M.S., University of Iasi, Romania, 1954; Ph.D., 1961.
- DRINKARD, GRETCHEN**, Assistant Clinical Professor of Nursing (2003). B.S.N., Southeastern Louisiana University, 1975; M.S.N., University of Missouri-Columbia, 1988; Ph.D., University of Missouri-St. Louis, 2004. Registered Nurse, Certified Family Nurse Practitioner.
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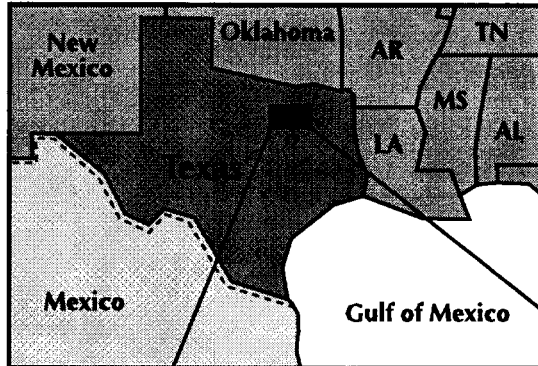
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# Texas and Surrounding States



Dallas/Fort Worth Metroplex Area

