SMU

Graduate Programs

NOTICE OF NONDISCRIMINATION

Southern Methodist University will not discriminate in any employment practice, education program or educational activity on the basis of race, color, religion, national origin, sex, age, disability or veteran status. SMU's commitment to equal opportunity includes nondiscrimination on the basis of sexual orientation. The director of Institutional Access and Equity has been designated to handle inquiries regarding the nondiscrimination policies.

The following catalogs constitute the General Bulletin of the University:
Undergraduate Catalog
Dedman School of Law Catalog
Perkins School of Theology Catalog
Dedman College Graduate Catalog
Cox School of Business Graduate Catalog
Meadows School of the Arts Graduate Catalog
Annette Caldwell Simmons School of Education and Human Development Catalog
Lyle School of Engineering Graduate Catalog

In addition, certain academic programs provide their own schedules and catalogs:

Continuing Education	International Programs
Summer Studies	SMU-in-Taos (Fort Burgwin)

Every effort has been made to include in this catalog information that, at the time of preparation for printing, most accurately represents Southern Methodist University. The provisions of the publication are not, however, to be regarded as an irrevocable contract between the student and Southern Methodist University. The University reserves the right to change, at any time and without prior notice, any provision or requirement, including, but not limited to, policies, procedures, charges, financial aid programs, refund policies and academic programs. Additional information may be obtained by writing to the offices listed below:

Admissions: *Undergraduate:* Executive Director of Enrollment Services and Undergraduate Admission
Graduate: Dean's Office of school – arts, business, engineering, law, theology; for humanities and sciences – Research and Graduate Studies Office

Employment: *Off Campus:* Hegi Family Career Development Center
On Campus: Division of Enrollment Services – Financial Aid

Financial Information on Tuition and Fees: Division of Enrollment Services – Student Financial Services

Housing: Department of Residence Life and Student Housing

Loans: Division of Enrollment Services – Financial Aid

Registration and Academic Records: Division of Enrollment Services – University Registrar

Scholarships: Division of Enrollment Services – Financial Aid

All addresses are as below:
Southern Methodist University
Dallas TX 75275

Information also is available at the website smu.edu.

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OFFICIAL UNIVERSITY CALENDAR

ACADEMIC YEAR 2009–2010

This calendar includes an addendum listing religious holidays for use in requesting excused absences according to University Policy 1.9. For religious holidays not listed, the instructor or supervisor may contact the Office of the Chaplain.

Graduate programs in the Cox School of Business, Perkins School of Theology and Dedman School of Law have different calendars.

Offices of the University will be closed on September 7, November 26–27, December 21–25, 2009; January 1, January 18, April 2, May 31 and July 5, 2010.

FALL TERM 2009

March 30–April 17, Monday–Friday: Enrollment fall 2009 continuing students for all undergraduates and graduate Dedman and Meadows.

May/July/August : Academic Advising, Enrollment and Orientation (AARO) conferences for new first-year and transfer undergraduate students. For a list of dates, contact New Student Programs, Student Life Office; 214-768-4560; smu.edu/newstudent.

August 23, Sunday: Residence halls officially open.

August 25, Tuesday: Opening Convocation, McFarlin Auditorium.

August 26, Wednesday: First day of classes.

September 1, Tuesday: Last day to enroll, add courses or drop courses without grade record or tuition billing. Last day to file for graduation in December.

September 7, Monday: University holiday – Labor Day.

September 9, Wednesday: Follows Monday class schedule.

September 11, Friday: Last day to declare pass/fail, no credit or first-year repeated course grading options. Last day to request excused absence for observance of a religious holiday.

October 7, Wednesday: Last day for continuing undergraduate students to change their majors before November enrollment.

October 12–13, Monday–Tuesday: Fall break.

November 2 –November 20, Monday–Friday: Enrollment spring 2010 continuing students for all undergraduates and graduate Dedman and Meadows.

November 3, Thursday: 60% point of the term that federal financial aid has been earned if a student officially withdraws from SMU. Prior to this date, a partial calculated return to federal programs will be required.

November 6–7, Friday–Saturday: Homecoming.

November 10, Tuesday: Last day to drop a course.

November 13–14, Friday–Saturday: Family weekend.

November 16, Monday: Last day for December graduation candidates to change grades of Incomplete.

November 24, Tuesday: Students should file for May graduation. Last day to file is January 21.

November 25, Wednesday: No classes.

November 26–27, Thursday–Friday: University holiday – Thanksgiving.

December 1, Tuesday: Last day to withdraw from the University.

December 4–9, Friday–Wednesday: No final examinations or unscheduled tests and papers.

December 7, Monday: Last day for oral/written examinations for December graduate degree candidates.

December 9, Wednesday: Last day of instruction.

December 10, Thursday: Reading day.

December 11–17, Friday–Thursday: Examinations. (No examinations scheduled for Sunday.)

December 18, Friday: Residence halls officially close. (December graduates contact RLSH.)

December 19, Saturday: Official close of term and date for conferral of degrees. Graduation ceremony for December graduates.

December 21–25, Friday: University holidays – Christmas/winter break.

JANUARY INTERTERM 2010

January 1, Friday: University holiday – New Year's Day.

(Note: Some areas of instruction offer selected courses during the January interterm, December 22–January 19.)

SPRING TERM 2010

November 2–January 25, Monday–Thursday: Enrollment spring 2010 continuing students for all undergraduates and graduate Dedman and Meadows.

January – TBA: Academic Advising, Enrollment and Orientation (AARO) conferences for new first-year and transfer undergraduate students. Conference dates to be announced. Contact New Student Programs, Student Life Office; 214-768-4560; smu.edu/newstudent.

January 1, Friday: University holiday – New Year's Day.

January 12, Tuesday: Residence halls officially open.

January 18, Monday: University holiday – Birthday of Martin Luther King, Jr.

January 19, Tuesday: First day of classes.

January 25, Monday: Last day to enroll, add courses or drop courses without grade record or tuition billing. Last day to file for May graduation.

February 3, Wednesday: Last day to declare pass/fail, no credit or first-year repeated course grading options. Last day to request excused absence for observance of a religious holiday.

March 6–14, Saturday–Sunday: Spring break.

March 31, Wednesday: 60% point of the term that federal financial aid has been earned if a student officially withdraws from SMU. Prior to this date, a partial calculated return to federal programs will be required.

April 2, Friday: University holiday – Good Friday.

April 4, Sunday: Easter Sunday.

April 5–23, Monday–Friday: Enrollment summer 2010 and fall 2010 continuing students for all undergraduates and graduate Dedman and Meadows.

April 5, Monday: Last day for continuing undergraduate students to change their majors before April enrollment.

April 8, Thursday: Last day to drop a course.

April 12, Monday: Last Day for May graduation candidates to change grades of Incomplete.

April 20, Tuesday: Students should file for August or December graduation. Last day to file for August is June 4. Last day to file for December is the last day to enroll for fall 2010.

April 26, Monday: Last day to withdraw from the University.

April 29–May 4, Thursday–Tuesday: No final examinations or unscheduled tests and papers.

April 30, Friday: Last day for oral/written examinations for graduate students who are May degree candidates.

May 4, Tuesday: Last day of instruction. Follows a Friday schedule.

May 5–11, Wednesday–Tuesday: Examinations. (No examinations scheduled for Sunday.)

May 12, Wednesday: Residence halls officially close for nongraduating students.

May 14, Friday: Baccalaureate.

May 15, Saturday: Commencement.

May 16, Sunday: Residence halls close for graduating students.

MAY TERM 2010

Some areas of instruction may offer a limited number of selected courses during the May term period, May 12–30. Each May term course may have unique start and end dates within the May 12–30 term to accommodate the particular needs of the course.

The following dates are applicable only for courses offered at the Taos campus:

May 12, Wednesday: SMU-in-Taos: May term travel day and arrival, 2–6 p.m.

May 13, Thursday: SMU-in-Taos: First day of classes.

May 14, Friday: SMU-in-Taos: Last day to enroll, add courses and drop courses without grade record or tuition billing. Permission of Taos Program required for all enrollments.

May 29, Saturday: SMU-in-Taos: May term examinations.

May 30, Sunday: SMU-in-Taos: May term departure.

SUMMER TERM 2010

The summer term consists of three primary sessions: first session, second session and a 10-week full session. There are also shorter and longer sessions to accommodate the particular needs of the various instructional units such as SMU-In-Taos, international programs and Perkins School of Theology.

Full Summer Session

Classes will meet 2 hours and 15 minutes twice a week or 1 hour and 30 minutes three times a week.

May 31, Monday: University holiday – Memorial Day.

June 1, Tuesday: First day of full summer session classes.

June 4, Friday: Last day to enroll, add courses or drop courses without grade record or tuition billing for full session course. Last day to file for August graduation.

June 10, Thursday: Last day to declare pass/fail, no credit or first-year repeated course grading options for a full session course.

July 4–5, Sunday–Monday: University holiday – Independence Day.

July 6, Tuesday: Follows a Monday class schedule.

July 10, Saturday: 60% point of the term that federal financial aid has been earned if a student officially withdraws from SMU. Prior to this date, a partial calculated return to federal programs will be required.

July 16, Friday: Last day for August graduation candidates to change grades of Incomplete.

July 23, Friday: Last day to drop a full summer session course.

July 29, Thursday: Last day to withdraw from the University.

August 4, Wednesday: Last day of full summer session instructions and examinations. Close of the term and conferral date.

First Session

Classes meet two hours a day, Monday–Friday.

May 31, Monday: University holiday – Memorial Day.

June 1, Tuesday: First day of first session classes.

June 2, Wednesday: Last day to enroll, add courses or drop courses without grade record or tuition billing for a first session course.

June 4, Friday: Last day to declare pass/fail, no credit or first-year repeated course grading options for a first session course. Last day to file for August graduation.

June 19, Saturday: 60% point of the term that federal financial aid has been earned if a student officially withdraws from SMU. Prior to this date, a partial calculated return to federal programs will be required.

June 23, Wednesday: Last day to drop a first session course.

June 24, Thursday: Last day to withdraw from the University.

June 30, Wednesday: Last day of first session instruction and examinations.

Taos Summer I Session

June 3, Thursday: SMU-in-Taos: Summer I arrival and first day of classes.

June 4, Friday: SMU-in-Taos: Last day to enroll, add courses and drop courses without grade record or tuition billing. Permission of Taos Program required for all enrollments.

June 30, Wednesday: SMU-in-Taos: Summer I examinations.

June 30, Wednesday: SMU-in-Taos: Summer I departure.

Second Session

Classes meet two hours a day, Monday–Friday.

June 4, Friday: Last day to file for August graduation.

July 1, Thursday: First day of second session classes.

July 2, Friday: Last day to enroll, add courses or drop without grade record or tuition billing for second session courses.

July 4–5, Sunday–Monday: University holiday – Independence Day.

July 6, Tuesday: Last day to declare pass/fail, no credit or first-year repeated course grading options for a second session course.

July 13, Tuesday: Last day for August graduation candidates to change grades of Incomplete.

July 23, Friday: Last day to drop a second session course.

July 24, Saturday: 60% point of the term that federal financial aid has been earned if a student officially withdraws from SMU. Prior to this date, a partial calculated return to federal programs will be required.

July 27, Tuesday: Last day to withdraw from the University.

August 2, Monday: Last day of second session instruction and examinations.

August 4, Wednesday: Official close of the term and conferral date.

Taos August Term 2010

August 5, Thursday: SMU-in-Taos: August term arrival and first day of classes, 2–6 p.m.

August 6, Friday: SMU-in-Taos: Last day to enroll, add courses and drop courses without grade record or tuition billing. Permission of Taos Program required for all enrollments.

August 22, Sunday: SMU-in-Taos: August term examinations.

August 23, Monday: SMU-in-Taos: August term departure.

MAJOR RELIGIOUS HOLIDAYS

(August 2009–August 2010)

Listing of religious holidays for use in requesting excused absences according to University Policy 1.9. For religious holidays not listed, the instructor or supervisor may contact the Office of the Chaplain.

Christian

Christmas: December 25, 2009

Good Friday: April 2, 2010

Ash Wednesday: February 17, 2010

Easter Sunday: April 4, 2010

Palm Sunday: March 28, 2010

Easter Sunday (Orthodox): April 4, 2010

Hindu

Janmashtami: August 28, 2009

Diwali: October 28, 2009

Dasera: October 9, 2009

Jewish

All holidays begin at sundown before the first day noted and conclude at sundown on the day(s) noted.

Rosh Hashanah: September 28–30, 2009

Purim: March 8–9, 2010

Yom Kippur: October 7, 2009

Pesach (Passover): April 7–15, 2010

Sukkot: October 12–14, 2009

Shavuot: May 28–30, 2010

Hanukkah: December 21–28, 2009

Muslim

Ramadan: September 1–2, 2009

Islamic New Year: December 29, 2009

Eid al Fitr: September 30–October 1, 2009

Ashura: January 7, 2010

Eid al Adha: December 7–8, 2009

Mawlid al Nabi: March 8–9, 2010

Description of the University

THE VISION OF SOUTHERN METHODIST UNIVERSITY

To create and impart knowledge that will shape citizens who contribute to their communities and lead their professions in a global society.

THE MISSION OF SOUTHERN METHODIST UNIVERSITY

Southern Methodist University's mission is to be a leading private institution of higher learning that expands knowledge through research and teaching. Among its faculty, students, and staff, the University develops skills and cultivates principled thought and wisdom. The University is dedicated to the values of academic freedom and open inquiry and to its United Methodist heritage.

To fulfill its mission the University strives for quality, innovation and continuous improvement as it pursues the following goals:

- To enhance the academic quality and competitiveness of the University.
- To improve teaching and learning.
- To strengthen scholarly research and creative achievement.
- To support and sustain student development and quality of life.
- To broaden global perspectives.
- To advance the University through select, strategic alliances.

SOUTHERN METHODIST UNIVERSITY

As a private, comprehensive university enriched by its United Methodist heritage and its partnership with the Dallas Metroplex, Southern Methodist University seeks to enhance the intellectual, cultural, technical, ethical and social development of a diverse student body. SMU offers undergraduate programs centered on the liberal arts; excellent graduate, professional and continuing education programs; and abundant opportunities for access to faculty in small classes, research experience, international study, leadership development and off-campus service and internships, with the goal of preparing students to be contributing citizens and leaders for our state, the nation and the world.

SMU comprises seven degree-granting schools: Dedman College of Humanities and Sciences, Meadows School of the Arts, Edwin L. Cox School of Business, Annette Caldwell Simmons School of Education and Human Development, Bobby B. Lyle School of Engineering, Dedman School of Law and Perkins School of Theology.

Founded in 1911 by what is now the United Methodist Church, SMU is nonsectarian in its teaching and is committed to the values of academic freedom and open inquiry.

The University has 104 buildings, a total enrollment that has averaged more than 10,000 the past 10 years, a full-time faculty of 656, and assets of $260,460,000 – including an endowment of $1,363,846,000 (Market Value, June 30, 2008).

Of the 10,965 students enrolled for the 2008 fall term, 6,240 were undergraduates and 4,725 were graduate and professional students. The full-time equivalent enrollment was 6,073 for undergraduates and 3,121 for graduate and professional students.

Nearly all the students in SMU's first class came from Dallas County, but now 47 percent of the University's undergraduate student body comes from outside Texas. In a typical school year, students come to SMU from every state, from 92 foreign countries, and from all races, religions and economic levels.

Undergraduate enrollment is 54 percent female. Graduate and professional enrollment is 44 percent female.

A majority of SMU undergraduates receive some form of financial aid. In 2008–2009, 77.1 percent of first-year students received some form of financial aid, and 25.0 percent of first-year students received need-based financial aid.

Management of the University is vested in a Board of Trustees of civic, business and religious leaders – Methodist and non-Methodist. The founders' first charge to SMU was that it become not necessarily a great *Methodist* university, but a great *university*.

ACADEMIC ACCREDITATION

Southern Methodist University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award baccalaureate, Master's and doctoral degrees. Accreditation questions for the Commission on Colleges can be addressed to 1866 Southern Lane, Decatur GA 30033-4097, or call 404-679-4501.

Individual academic programs are accredited by the appropriate national professional associations. The Cox School of Business is accredited by AACSB International – the Association to Advance Collegiate Schools of Business. The Dedman School of Law is accredited by the American Bar Association. Perkins School of Theology is accredited by the Association of Theological Schools in the United States and Canada. The Department of Chemistry is accredited by the American Chemical Society. In the Meadows School of the Arts, the Dance Division is accredited by the National Association of Schools of Dance, the Music Division by the National Association of Schools of Music, and the Theatre Division by the National Association of Schools of Theater.

The Lyle School of Engineering undergraduate programs in civil engineering, computer engineering, electrical engineering, environmental engineering and mechanical engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology Inc.: 111 Market Place, Suite 1050, Baltimore MD 21202-4012; telephone: 410-347-7700. The undergraduate computer science program that awards the B.S. degree is accredited by the Computing Accreditation Commission of ABET. The undergraduate computer science program that awards the B.A. degree is not accredited by a commission of ABET. ABET does not provide accreditation for the disciplines of environmental science and management science.

GENERAL INFORMATION

DEDMAN COLLEGE OF HUMANITIES AND SCIENCES

Dedman College, the School of Humanities and Sciences, has been the intellectual heart of the University since SMU was founded in 1911. The college, one of the nation's premier liberal arts institutions, has earned a reputation for the breadth and depth of its graduate programs and the quality of its learning and research resources.

Graduate work at the Master's level has been offered at SMU since the University first opened its doors in 1915. Doctoral work was begun in 1959. Graduate faculty members are actively engaged in research and have a strong commitment to student participation in their projects. Excellent students are attracted from all regions of the United States and from many foreign countries.

For information in addition to that given in this catalog, contact the Office of Research and Graduate Studies at 214-768-4345 or smugrad@smu.edu.

The degrees available through the graduate faculty of Dedman College are the M.A., M.S. and Ph.D. Those fields of study that are starred indicate the areas in which doctoral programs are offered.

* Anthropology
    Medical Anthropology
* Biological Sciences
* Chemistry
  Earth Sciences
    * Geology
    * Geophysics
    Applied Geophysics
* Economics
    Applied Economics
* English-Literature
* History
* Computational and Applied Mathematics
  Medieval Studies
* Physics
* Psychology
    Clinical
* Religious Studies
* Statistical Science

ADMISSION

Admission may be of three types:

1. **Full,** without restriction.
2. **Provisional,** when some essential document is lacking or the record suggests the advisability of a trial period. Provisional status is reviewed when the deficiency has been corrected or after the student has completed a minimum of 12 term hours of coursework. If, on review, the record is found satisfactory, the status is altered by the Office of Research and Graduate Studies to full admission with credit from the time of first enrollment.
3. **Nondegree,** when the student needs background courses or desires transferable graduate credit for certification or some other purpose but is not undertaking a degree program. Nondegree admission is selective. Not more than six term hours of graduate credit earned under nondegree status may be applied toward an advanced degree in Dedman College.

No student is allowed to enroll unless notified of admission by the Office of Research and Graduate Studies.

ADMISSION REQUIREMENTS

Applicants holding the Bachelor's degree from an institution of standard collegiate rank, recognized by the accrediting agencies in whose jurisdiction the college is located, may apply for admission to graduate studies. Graduates of colleges not fully recognized will be treated as special cases and required to produce evidence attesting to the quality of their programs. Any student whose Bachelor's degree is not equivalent to the comparable baccalaureate degree from Southern Methodist University may be required to take sufficient additional work to make up the deficiency. All applicants must have adequate subject preparation in the chosen major field, normally an overall grade point average of 3.0 (on a 4.0 scale) and a satisfactory score on the GRE (Graduate Record Examinations).

FOREIGN STUDENTS

Applicants from countries where the predominant language is not English are required to supply scores on the Test of English as a Foreign Language administered by Educational Testing Service. The minimum TOEFL score for admission is 210 on the computer-based test or 80 on the Internet-based test. The Test of Spoken English or equivalent is required for teaching assistants. International English Language Testing System scores also are accepted.

Applicants who have completed studies at and received diplomas or professional titles from institutions outside the United States should ordinarily have completed 16 years of study: 12 years at the elementary and secondary school level and four years at the university level. Eligibility is judged by grades (marks), class obtained or rank achieved in class. Evidence of class placement therefore should be specifically set forth in the official records submitted.

Applicants holding Bachelor's degrees from foreign universities should not assume that these degrees will be automatically accepted in U.S. universities. Applicants who have achieved first or high second class from universities that confer classes based on grades (marks) will be preferred. Applicants holding Bachelor's degrees with honors or Master's degrees have a better chance of being accepted in U.S. universities. Also, decisions will be based on the academic standing of the institutions from which the applicant has graduated. Professional diplomas and higher certificates from technical or vocational schools are normally not considered as equivalent to a Bachelor's degree. Departments have the option of making authentication of transcripts part of the process of offering assistantships to international students.

APPLICATION PROCEDURE

Access to the online application is available at applyweb.com/apply/smugr/menu. The online application is available from August 15 to May 1. For general questions, contact smugrad@smu.edu. A complete application should include the following:

1. The application.
2. An official transcript for all post-high school work.
3. The application fee of $75 collected online.
4. Three letters of recommendation.
5. GRE scores.
6. TOEFL scores for foreign applicants.
7. Writing samples required for history or English programs.

An application will be considered when all the aforementioned items have been received in the Graduate Office.

APPLICATION DEADLINES

Fall: **December 1 –** Psychology, Ph.D.

January 15 – English Ph.D., Religious Studies

February 1 – To be considered for department assistantships and/or first-round admissions decisions

March 1 – Second round of admission decisions

May 1 – Final deadline

Spring: November 30 – Final deadline

Due to the extra time necessary for visa processing, foreign applicants are advised to have their completed application sent to the Office of Research and Graduate Studies at least **two months** before these deadlines. Students who apply for departmental assistantships should submit their applications by **February 1** as noted.

MCNAIR SCHOLARS PROGRAM

SMU encourages McNair Scholars to apply for graduate studies in Dedman College of Humanities and Sciences by waiving their application fee. In addition, 10 tuition fee waivers – five through Dedman College and five through the School of Engineering – are designated for admitted McNair Scholars applicants. SMU supports the aims of this program – to identify and mentor undergraduates as they prepare for graduate school – and would like to participate in helping students realize their goals.

McNair Scholars should identify themselves as such on their application. Questions can be directed to smugrad@smu.edu.

IRT APPLICANTS

As the newest member of a consortium of universities working with the Institute for Recruitment of Teachers, SMU extends a welcome to applicants seeking graduate degrees. SMU provides an application fee waiver and invites applicants to apply to Dedman College's graduate programs.

Departments award assistantships based on the merits of the applicant and the limits of the budget.

Financial Information

A catalog supplement, *Financial Information: Southern Methodist University*, is issued each academic year. It provides the general authority and reference for SMU financial regulations and obligations, as well as detailed information concerning tuition, fees and living expenses.

The supplement is available on the Bursar website at smu.edu/bursar. For more information, call 214-768-3417.

Students registering in Continuing Student Enrollment must ensure that payment is received in the Division of Enrollment Services by the due date (published on the Bursar website). No confirmation of receipt of payment will be sent. Invoice notifications are e-mailed to the student's SMU e-mail address after registration for the student to view on the Web. If notification has not been received two weeks prior to the due date, Enrollment Services should be contacted. The registration of a student whose account remains unpaid after the due date may be canceled at the discretion of the University. Students registering in New Student Enrollment and Late Enrollment must pay at the time of registration.

Students are individually responsible for their financial obligations to the University. All refunds will be made to the student, with the exception of PLUS loans and the SMU Monthly Payment Plan. If the refund is issued by check, the student may request, in writing, that the refund be sent to another party. Any outstanding debts to the University will be deducted from the credit balance prior to issuing a refund check. Students with Title IV financial aid need to sign an Authorization to Credit Account form. Students with a PLUS Loan need to have the parent sign an Authorization to Credit Account Parent form. A student whose University account is overdue or who is in any other manner indebted to the University will be denied the recording and certification services of the Office of the Registrar, including the issuance of a transcript or diploma, and may be denied readmission until all obligations are fulfilled. The Division of Enrollment Services may stop the registration – or may cancel the completed registration – of a student who has a delinquent account or debt, and may assess all attorney's fees and other reasonable collection costs (up to 50 percent) and charges necessary for the collection of any amount not paid when due. Matriculation in the University constitutes an agreement by the student to comply with all University rules, regulations and policies.

Arrangements for financial assistance from SMU must be made in advance of registration and in accordance with the application schedule of the Division of Enrollment Services – Financial Aid. A student should not expect such assistance to settle delinquent accounts.

Students who elect to register for courses outside of their school of record will pay the tuition rate of their school of record.

WITHDRAWAL FROM THE UNIVERSITY

A student who wishes to withdraw (resign) from the University before the end of a term or session must initiate a Student Petition for Withdrawal form, obtain approval from his or her academic dean, and submit the form to the Division of Enrollment Services – University Registrar. The effective date of the withdrawal is the date on which the Student Petition for Withdrawal is processed in the Registrar's Office. Discontinuance of class attendance or notification to the instructors of intention to withdraw does not constitute an official withdrawal.

Reduction of tuition and fees is based on the schedule listed in the *Financial Information: Southern Methodist University* and is determined by the effective date of the withdrawal. The schedule may be found at smu.edu/bursar, or call 214-768-3417.

Please note, however, for students receiving financial aid (scholarships, grants or loans), when the withdrawal date qualifies for reduction of tuition and fees charges, the refund typically will be used to repay the student aid programs first and go to the student/family last. Further, government regulations may require that SMU return aid funds whether or not the University must reduce its tuition and fees; hence, a student whose account was paid in full prior to withdrawal may owe a significant amount at withdrawal due to the required return of student aid. Therefore, students who receive any financial aid should discuss prior to withdrawal the financial implications of the withdrawal with staff of the Division of Enrollment Services.

Medical withdrawals have conditions that must be met prior to re-enrollment at SMU. Medical withdrawals must be authorized by the medical director, psychiatric director, counseling and testing director, or vice president for Student Affairs.

Students who live in University housing must obtain clearance from the Office of Residence Life and Student Housing.

GRADUATE AND PROFESSIONAL STUDENT AID

University grants, scholarships, fellowships, and assistantships are awarded in the school or department in which the graduate student will enroll. Departments which offer the M.A., M.S., or Ph.D. degrees offer a significant number of tuition scholarships and teaching or research assistantships each year. For information, contact the department.

Grants and loans for Texas residents, private and federal loans, and employment programs may be available by filing the Free Application for Federal Student Aid. The FAFSA may be completed online at fafsa.gov. A personal identification number can be obtained at pin.ed.gov, which can be used to electronically sign the application. SMU's code number is 003613.

See smu.edu/registrar for more information.

POLICIES AND PROCEDURES

The standards herein are applicable to all students at the University and constitute the basic authority and reference for matters pertaining to University academic regulations and records management. Enrollment in the University is a declaration of acceptance of all University rules and regulations.

CONFIDENTIALITY OF EDUCATION RECORDS

The Family Educational Rights and Privacy Act of 1974 is a federal law that grants to students the right to inspect, obtain copies of, challenge and, to a degree, control the release of information contained in their education records. The act and regulations are very lengthy, and for that reason SMU has issued guidelines that are available at the University registrar's FERPA website at smu.edu/ferpa. Policy 1.18 of the University Policy Manual, accessible at smu.edu/policy, also discusses this law.

In general, no personally identifiable information from a student's education record will be disclosed to any third party without written consent from the student. Several exceptions exist, including these selected examples: 1) Information defined by SMU as directory information may be released unless the student requests through Access.SMU Self-Service that it be withheld; 2) Information authorized by the student through Access.SMU Self-Service may be released to those individuals designated by the student; and 3) Information may be released to a parent or guardian if the student is declared financially dependent upon the parent or guardian as set forth in the Internal Revenue Code. For more information, visit smu.edu/ferpa.

STUDENT FILE NUMBER

A student's SMU identification number is an eight-digit number assigned by the University. The SMU ID number should be furnished on all forms when requested, as it is the primary means for identifying the student's academic records and transactions related to the records.

NAME CHANGE

A student who has a change in name must provide his or her Social Security card or the form issued by the Social Security Administration. Enrollment or records services for the student under a name different from the last enrollment cannot be accomplished without the above documents. All grade reports, transcripts and diplomas are issued only under a person's *legal* name as recorded by the University registrar.

MAILING ADDRESSES, TELEPHONE, E-MAIL ADDRESS AND EMERGENCY CONTACT

Each student must provide the University registrar with a current home address, telephone number and a local mailing address, as well as the name, address and telephone number of a designated emergency contact. Students enrolling at SMU authorize the University to notify their emergency contacts in the event of a situation affecting their health, safety, or physical or mental well-being, and to provide these contacts with information related to the situation.

Students are expected to keep current all their addresses and telephone numbers, including emergency contact details, through Access.SMU, the University's Web-based, self-service system. Changes should be reported on the Web form found at smu.edu/registrar. Students may be prevented from enrolling if their information is insufficient or not current.

The University issues all students an e-mail address. Students may have other e-mail addresses, but the University-assigned e-mail address is the official address for University electronic correspondence, including related communications with faculty members and academic units (except for distance education students).

Official University correspondence may be sent to students' mailing addresses or SMU e-mail addresses on file. It is the responsibility of students to keep all their addresses current and to regularly check communications sent to them as they are responsible for complying with requests, deadlines and other requirements sent to any of their mailing addresses on file or to their SMU e-mail.

CELL PHONES

The University requests that students provide cellular telephone numbers as they are one means of communicating with students during an emergency. Cellular telephone numbers may also be used by University officials conducting routine business. Students who live in University housing must obtain clearance from the Office of Housing. Students who do not have cellular telephones or do not wish to report the numbers may declare this information in lieu of providing cellular telephone numbers. However, students may be prevented from enrolling if their cellular telephone numbers are not on file or if they have not declared "no cellular telephone" or "do not wish to report cellular number."

TRANSCRIPT SERVICE*

A transcript is an official document of the permanent academic record maintained by the University registrar. The permanent academic record includes all SMU courses attempted, all grades assigned, degrees received and a summary of transfer hours accepted. Official transcripts and certifications of student academic records are issued by the University registrar for all students of the University. Copies of high school records and transfer transcripts from other schools must be requested from the institutions where the coursework was taken.

Transcripts are $11.25 per copy. Additional copies in the same request mailed to the same address are $3 per copy. Additional copies mailed to different addresses are $11.25 per copy. Requests may be delayed due to outstanding financial or other obligations or for posting of a grade change, an earned degree or term grades.

Transcripts should be requested online at smu.edu/registrar. Once on the registrar's page, click on Transcript Requests and follow the instructions. Requests will be processed through the National Student Clearing House. Telephone and e-mail requests are not accepted. Students may pick up their transcripts in person at the Registrar's Office service counter, 101 Blanton Building. No partial or incomplete transcripts including only certain courses or grades are issued. **Transcripts cannot be released unless the student has satisfied all financial and other obligations to the University.**

SMU is permitted, but not required, to disclose to parents of a student information contained in the education records of the student if the student is a dependent as defined in the Internal Revenue Code.

Transcripts may be released to a third party as specified by the student on the Student's Consent for SMU to Release Information to Student's Specified Third Party Form accessible at smu.edu/registrar/ferpa/forms.asp.

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* Chapter 675, S.B. 302. Acts of the 61st Texas Legislature, 1969 Regular Session, provides:
Section I. No person may buy, sell, create, duplicate, alter, give or obtain; or attempt to buy, sell, create, duplicate, alter, give or obtain a diploma, certificate, academic record, certificate of enrollment or other instrument which purports to signify merit or achievement conferred by an institution of education in this state with the intent to use fraudulently such document or to allow the fraudulent use of such document.
Section II. A person who violates this act or who aids another in violating this act is guilty of a misdemeanor and upon conviction is punishable by a fine of not more than $1,000 and/or confinement in the county jail for a period not to exceed one year.

ENROLLMENT

The fall, spring and summer terms each have an enrollment period during which the formal process of enrollment in the University is completed. Prior to each enrollment period, the University registrar will publish enrollment instructions.

STOP ENROLLMENT/ADMINISTRATIVE WITHDRAWAL

Insufficient or improper information given by the student on any admission or enrollment form, or academic deficiencies, disciplinary actions and financial obligations to the University, can constitute cause for the student to be determined ineligible to enroll or to be administratively withdrawn.

TERM-HOUR LOADS

The unit of measure for the valuation of courses is the term hour; i.e., one lecture hour or three laboratory hours per week for a term of approximately 16 weeks (including final examinations).

Enrollment for nine hours of coursework per term is recognized as a full load for persons engaged in graduate studies. In some departmental fields, exceptionally able students may complete all requirements for the Master's degree during a single academic year, but ordinarily additional work in a summer session is necessary, and in some fields one and a half or two full academic years of work are required. After completion of the required credit-hour requirements, all Ph.D. students should retain their student status until graduation, unless granted a leave of absence. Persons who enroll for fewer than these minimum hours are designated part-time students.

A graduate student working on the completion of a thesis, dissertation or performance recital requirement on a full-time or part-time basis; enrolled in an internship or co-op program; enrolled as a third-year theater major working on the completion of required production projects; or having an instructor appointment as part of a teaching fellowship, but not enrolled for the required number of hours; may be certified as a full-time or part-time student if the student is enrolled officially for at least one course and is recognized by his or her academic dean or the dean for Research and Graduate Studies as working on the completion of the thesis, dissertation or internship requirement on a full-time or part-time basis. In other special situations, a student not enrolled for the required number of hours may be certified as a full-time or part-time student if the student is officially enrolled for at least one course, is recognized by the academic dean as a full-time or part-time student, and such recognition is approved by the provost.

CONCURRENT ENROLLMENT

A student who wishes to enroll concurrently in another college or university should first obtain written approval from the Graduate Dean's Office that the courses taken will be transferable.

INTERPRETATION OF COURSE NUMBERS

Each SMU course has a four-digit course number. The first number indicates the general level of the course: 1 – first year; 2 – sophomore; 3 – junior; 4 – senior; 5 – senior or graduate; 6, 7, 8, 9 – graduate. The second digit specifies the number of credit-hours ("0" for this digit denotes no credit, one-half hour of credit, or 10–15 hours of credit; for theology courses, a "1" denotes one or one and one-half hours of credit.) The third and fourth digits are used to make the course number unique within the department.

APPROVED COURSES

Normally all graduate-level courses are numbered 6000 and above. Graduate students may take courses numbered below 6000 if they are part of the program of

study or with the approval of the faculty adviser. For the 6000 level or above, the general prerequisite, in addition to admission to graduate studies, is 12 term hours of advanced work in the department, or six term hours in the department and six in a closely related program approved by the major department and the dean for Research and Graduate Studies. If other specific prerequisites are needed, these are stated in departmental listings of courses.

READMISSION AND SCHEDULE CHANGES

Students already matriculated into a program who were not enrolled in the previous term must file a readmission application. This form must be received in the graduate office **no later than three weeks before the enrollment date** for the desired term of re-entrance.

The deadline for adding courses, dropping courses without grade record and changing sections for each enrollment period is listed in the Official University Calendar. Schedule-change forms are initiated in the office of the student's academic dean or adviser and must be completed for all courses added or dropped and for all section changes. A student may drop a course with a grade of *WP* (Withdrawal Passing) through the deadline listed in the Official University Calendar. After the deadline, the student may not drop a class. **All schedule changes must be processed by the deadline date specified in the Official University Calendar. Schedule changes are not complete for official University record purposes unless finalized in the Office of the University Registrar.**

AUDIT ENROLLMENT (COURSE VISITOR)

Students desiring to audit (visit) a class, whether or not concurrently enrolled for regular coursework, are required to process an Audit Enrollment Request Form. Forms are available online at smu.edu/registrar. Space must be available in the class. The following regulations are applicable:

1. Classroom recitation and participation are restricted; availability of course handouts, tests and other materials is restricted; no grade is assigned and no credit is recorded; no laboratory privileges are included.
2. If credit is desired, the course must be enrolled for and repeated as a regular course, and the regular tuition must be paid.
3. The student's name does not appear on class rosters or grade rosters.
4. Regular admission and enrollment procedures are not conducted for auditors.
5. The audit fee is nonrefundable. Undergraduate students enrolled for 12 or more hours may audit one three-hour course at no charge.

ENROLLMENT FOR NO-CREDIT

Enrollment for "no-credit" is accomplished in the conventional manner of enrollment, with regular admission and enrollment procedures being required. The student pays the regular tuition and fees, participates in class activities, is listed on class rolls, and receives the grade of *NC* upon completion of the coursework. The student must indicate in writing no later than the 12th day of classes (the fourth day during summer sessions) that he or she wishes to take a course for No-Credit. Permission of the instructor or department is required for this type of enrollment. This enrollment is different from audit enrollments, for which no enrollment or grade is recorded.

WITHDRAWAL

A student who wishes to withdraw (resign) from the University before the end of a term or session must initiate a Student Petition for Withdrawal form, obtain approval from his or academic dean, and submit the form to the Division of Enroll-

ment Services – University Registrar. The effective date of the withdrawal is the date on which the Student Petition for Withdrawal is processed in the Registrar's Office. Discontinuance of class attendance or notification to the instructors of intention to withdraw does not constitute an official withdrawal.

Reduction of tuition and fees is based on the schedule listed in the publication *Financial Information: Southern Methodist University*, which is found at smu.edu/bursar, and is determined by the effective date of the withdrawal. This information is also available online at smu.edu/registrar. Students receiving financial aid should refer to the Financial Information section of the catalog.

The enrollment of students who withdraw on or before the fifth day of regular classes as listed in the Official University Calendar will be canceled. Courses and grades are not recorded for canceled enrollments. A student who withdraws after the fifth class day will receive the grade of *W* in each course in which enrolled.

Medical withdrawals provide a daily pro rata refund of tuition and fees, and have conditions that must be met prior to re-enrollment at SMU. Medical withdrawals must be authorized by the medical director; psychiatric director; counseling and testing director; dean of Student Life, or vice president for Student Affairs. Authorization must be obtained no later than the University's withdrawal date for the term.

Students who live in University housing must obtain clearance from the Office of Housing.

PROBATION, SUSPENSION AND DISMISSAL

Failure to meet established minimum acceptable standards of academic or disciplinary performance can result in probation, suspension or dismissal. Information regarding disciplinary action may be found in the University Life section of the catalog.

Graduate students must maintain a cumulative grade point average of 3.0. If in any term the student falls below this GPA, the student will be placed on probation for one term. If at the end of the term of probation the cumulative GPA is not up to 3.0, the student will be removed from the program.

Academic Probation. The status of academic probation is a stern warning to the student that satisfactory progress toward graduation is not being made. A student on probation is considered in "good standing" for certification purposes and is eligible to enroll. No entry is made on the permanent academic record.

Academic Suspension and Dismissal. These are involuntary separations of the student from the SMU school of record. Suspension is for a set period of time. Dismissal is permanent. A student is not in good standing in the suspending or dismissing school and is not eligible to enroll as a student in that school during the suspension or dismissal period. "Academic Suspension (or Dismissal)" is recorded on the permanent academic record.

GRADES

The grade of a student in any course is determined by the instructor of the course. The following grades are authorized for recording on the student's official graduate academic record maintained by the University registrar.

Graduate and Master of Laws Students

Grades	Description	Grade Point per Term Hour
A, A-	Excellent Scholarship	4.0, 3.7
B+, B, B-	Good Scholarship	3.3, 3.0, 2.7
C+, C, C-	Fair Scholarship	2.3, 2.0, 1.7
D+, D, D-	Poor Scholarship	1.3, 1.0, 0.7
F	Failure	0.0
P, CR	Pass, Credit	*
I	Incomplete	*

NC	No Credit Received	*
WP/W	Withdrawal Passing	*
X	No Grade Received in Registrar's Office	*

* Grades not included in grade point average.

A student may receive a grade of *I* (Incomplete) if at least 50 percent of the course requirements have been completed with passing grades, but for some justifiable reason, acceptable to the instructor, the student has been unable to complete the full requirements of the course. At the time a grade of *I* is given, the instructor must stipulate in writing to the student and to the University registrar the requirements and completion date that are to be met and the grade that will be given if the requirements are not met by the completion date. The maximum period of time allowed to clear the Incomplete grade is 12 months. If the Incomplete grade is not cleared by the date set by the instructor or by the end of the 12-month deadline, the grade of *I* will be changed to the grade provided by the instructor at the time the Incomplete grade was assigned or to a grade of *F* if no alternate grade was provided. The grade of *I* is not given in lieu of a grade of *F* or *W*, or other grade, each of which is prescribed for other specific circumstances. If the student's work is incomplete and the quality has not been passing, a grade of *F* will be given. The grade of *I* does not authorize a student to attend the course during a later term. Graduation candidates must clear all Incomplete grades prior to the deadline in the Official University Calendar, which may allow less time than 12 months. Failure to do so can result in removal from the degree candidacy list and/or conversion of the grade of *I* to the grade indicated by the instructor at the time the grade of *I* was given.

A failure is graded *F*. After such a grade, credit may be obtained only by repeating the course.

The grade of *D* represents performance below average expectations. Students receiving a *D* in a course that is a prerequisite to another course should consult with their adviser about repeating the course so they will be adequately prepared for work in the following course.

The grade of *W* cannot be recorded unless completion of official drop or withdrawal process has occurred by the applicable deadline **during the term of enrollment**. Only the grade of *W* may be recorded if the student has officially dropped courses from the schedule or withdrawn (resigned) from the University. The grade of *W* may not be revoked or changed to another grade, as the act of officially dropping/withdrawing is irrevocable.

The student's grades are available to the student through Access.SMU.

Grade Point Average

This average is computed by multiplying the term hours of each course attempted by the grade points earned in the particular course and then dividing the total number of grade points by the total number of hours attempted, excluding those hours for which grades are shown with an asterisk.

Pass/Fail Option

Grades of *P* or *F* may be given for graduate-level readings, research and dissertation courses at the 7000 and 8000 level, with the faculty member's decision concerning use of the option to be stated at the first meeting between the student and the faculty member. Students enrolled in dissertation courses may receive a grade of *S* for satisfactory progress pending completion of the dissertation.

Grade of Incomplete

I (Incomplete) indicates that work is satisfactory, but, due to reasons beyond the student's control, some portion of the required work has been left incomplete. The

instructor assigning the grade of *I* stipulates to the student in writing, at the time the grade is given, the conditions under which the *I* may be removed. Forms for this are available from the Office of the Dean. Forms for changing the grade of *I* are initiated by the course instructor and authorized by the dean for Research and Graduate Studies.

For graduate students, a maximum of two (six hours) concurrently held grades of *I* (Incomplete) in courses other than thesis is allowed. If this maximum is reached, the student will be allowed to take only one three-hour course per term until the Incomplete total is reduced. Students who accumulate a total of three grades of *I* (Incomplete) in courses other than thesis or dissertation will be put on probation and not allowed to enroll further until the total is reduced.

Changes of Grades

Changes of grades, including change of the grade of *I*, are initiated by the course instructor and authorized by the academic chair and by the academic dean of the school in which the course was offered. If a student requests a grade change, the instructor may ask the student to provide a written petition requesting the change of grade, which may become an official part of any further process at the instructor's discretion. Changes of grades may be made only for the following authorized reasons: to clear a grade of *I,* to correct a processing error or to reflect a reevaluation of the student's original work. A change of grade will not be based on additional work options beyond those originally made available to the entire class.

Changes of grades of *I* should be processed within a calendar year of the original grade assignment. Other changes in grade must be processed by the end of the next regular term. No grade will be changed after 12 months or after a student's graduation except a grade successfully appealed, provided that written notice of appeal is given within six months following graduation, and in extenuating circumstances authorized by the academic dean and approved by the registrar.

Grades for Repeated Courses

Students who enter the University directly from high school may repeat up to three courses for which grades of *D+* or lower were received, provided these courses were completed before or during a student's first two consecutive regular terms following matriculation (regardless of the student's enrollment or withdrawal). "College prep" courses completed a summer prior to matriculation are NOT eligible to be repeated under this rule. The grade from the repeated course, even if lower, will be the grade used to calculate the student's grade point average. A course may be repeated only once under this policy, and it must be repeated within the next two regular terms (regardless of the student's terms of enrollment or withdrawal, but not counting a term of academic suspension) following the term in which the course was initially taken. Exceptions to the two-term restriction may be requested from the University registrar if the course is not taught again within that period. The student must declare which courses he or she will repeat under this policy with his or her academic dean by the 12th day of classes. Only the repeated course and not the initial credit hours count toward the number needed for graduation. Both the initial and the second grades are shown on the student's permanent academic record. Students are cautioned that for some purposes, such as admission into an academic program, both grades may be used.

In all other cases, students will be allowed to repeat courses according to the following rules: Both the initial and the second grades will be on the student's permanent academic record. Both grades will be included in the calculation of the

grade point average and in the determination of academic probation, suspension, honors and graduation. Only the repeated course and not the initial credit hours count toward the number needed for graduation.

The courses a student can repeat are determined by the school of record:

Dedman College and the Cox School of Business. Students can repeat courses in which the original grade was *D+* or below.

Meadows School of the Arts and Lyle School of Engineering. Students can repeat courses in which the original grade was a *C-* or below. Such courses can be repeated only once.

Appeal of Grades

A student who feels that an assigned grade is other than the grade earned must first discuss the matter with the course instructor to determine if the discrepancy is caused by error or misunderstanding. At the time of the initial discussion, the student may be asked to provide a written petition requesting the change of grade.

A student who is not satisfied by the instructor's denial of a request for a grade change, and who maintains that the original grade was capriciously or unfairly determined, may appeal to the chair of the department in which the course was offered (or, in the case of a nondepartmental course, to a faculty agent designated by the dean for the course). After discussing the matter with the student, and bearing in mind that the final authority in matters of academic judgment in the determination of a grade rests with the course instructor, the chair (or faculty agent) will consult with the course instructor, who will subsequently report to the student the disposition of the appeal.

A student who is not satisfied by the disposition of the appeal may appeal the decision to the dean of the course. The dean will take action as he or she deems appropriate. A student may appeal the dean's decision to the provost. In their actions, the dean and the provost must respect the principle that the determination of a grade rests with the course instructor.

THESIS/PRAXIS/DISSERTATION

Several Master's degree programs require theses for completion; several others leave theses as an option. The Doctor of Engineering program requires the completion of a praxis. Dissertation is required of all Ph.D. programs.

A final copy of the thesis/praxis/dissertation will be electronically submitted as partial fulfillment for degree requirements. A microfilm copy will be housed in the University's library and can be copied and made available to the University community, and to other individuals and institutions upon request, all at the discretion of the Central University librarian at Southern Methodist University.

Degree Requirements

General requirements of graduate degree programs are described on the following pages. Additional requirements for specific programs are contained in the corresponding departmental section.

THE MASTER'S DEGREE

Distribution of Courses

Each Master's degree program includes a minimum of 30 term hours of work. At least 18 term hours of the courses included in each student's program for a Master's degree shall be those numbered 6000 or above.

At least 18 term hours of credit must be earned in the major departmental field. (In order to obtain graduate credit for these courses, however, the student must have taken at least 12 term hours of advanced credit in the major field, or else six term hours in that and six in a closely related field approved by the chair of the major department and the graduate dean.) The remaining hours may also be taken in the major field, or else in one or more minor fields approved as closely related to the major subject.

Credits

The term hour is a unit of credit that represents the work accomplished in one hour of lecture each week during a term. The great majority of courses offered meet three hours a week and have a value of three term hours. The second digit of each course number indicates the value in term hours of that course. All courses attempted for credit on a student's graduate program must average B (3.0) or better, with no grade less than C (2.0) applying toward the degree.

No course counted toward another degree may be counted toward a Master's degree, either directly or by substitution, with the following exception: Upon approval of the departments concerned, work accomplished while in pursuit of a Ph.D. degree may be used to satisfy requirements for a Master's degree, provided declaration of intent to receive the degree is received by the Office for Research and Graduate Studies before the date of receipt of the Ph.D. degree.

Transfer of Credits

Not more than six term hours of work from another institution shall apply toward a candidate's Master's program. All credit for work transferred must show grades of A or B and is subject to the approval of the major department. An official record of such work must be on file in the graduate office of Southern Methodist University at least 30 days before the student expects to receive the degree. Upon approval of the dean, six term hours of credit may be taken by extension. No credit is allowed for study by correspondence.

Time Limit

No credit will be allowed toward the Master's degree for courses taken more than six years before the date on which the degree is to be conferred. An appeal for a waiver of this regulation can be made only by faculty members of the department in which the student is doing his or her major work, following a written examination of the subject matter petitioned.

Master's En Route to the Ph.D.

In certain departments, the Master's degree may be awarded to those Doctor of Philosophy degree candidates who have successfully completed all Ph.D. requirements except the dissertation.

Thesis

The thesis, if required, must be written under the guidance of a thesis director who is a member of the faculty. The director will be appointed by the departmental faculty after consultation with the candidate.

The thesis, typewritten in final form and accompanied by a statement of approval written by the thesis director, must be presented for inspection at the Office of Research and Graduate Studies.

Students who intend to graduate must pick up a graduation packet, which includes the calendar of important deadlines, graduation forms and the Guidelines for Preparation of Thesis/Dissertation.

In submitting a thesis, the student thereby grants permission to the director of libraries at SMU to make copies at the director's discretion, upon the request of individuals or institutions.

Examinations

Each candidate must pass an oral and/or written examination, which will include a defense of the thesis if applicable and will test the candidate's knowledge of the major and minor fields. This examination must be taken before or on the date set by the University calendar.

With approval of the departmental faculty, the departmental chair or the departmental director of graduate studies, as appropriate, shall appoint a committee of the graduate faculty to review the thesis (if applicable) and to conduct the examination. The departmental chair or director will notify members of the committee of their appointments and report the committee membership to the dean of Research and Graduate Studies.

The committee for Master's level shall consist of at least three members, two of whom must be the major adviser or a designate, who will serve as chair, and a tenured/tenure-track member of the candidate's major department. The third member (or additional members) of the committee may be an additional member of the candidate's major department or an external reviewer, appointed with the approval of the department chair.

The examination will be conducted by the committee and by any other members of the faculty who care to attend as nonvoting members. The chair of the examining committee will set a date, hour and place for the examination that is agreeable to the committee members and the candidate. A unanimous vote of the committee is necessary for approval of the examination. Students who fail the examination may be given a second examination, at a time to be determined by the committee, but not later than one year after the initial examination. Those who fail the examination the second time are thereby disqualified for a degree.

THE DEGREE OF DOCTOR OF PHILOSOPHY

The degree of Doctor of Philosophy is awarded in recognition of high attainment in a special field of knowledge, as evidenced by examination and by a dissertation presenting the results of significant and original research. General requirements are listed below. In many programs, however, there are additional requirements, and students should carefully check regulations in their particular programs.

Qualifying Examination

The purpose of the qualifying examination is to test the student's knowledge of the field of specialization, to assess familiarity with the published research in the field, and to determine whether the student possesses critical and analytical skill necessary for a scholarly career. The examination may be written and/or oral and normally is administered two or three years after matriculation in the program. When a faculty committee is responsible for this examination, the members should be drawn from the broad field of specialization so as to be able to assess the student's ability in breadth as well as depth. If a minor field also is involved, a faculty member in the minor area should participate in administering the qualifying examination. Even

though it is not necessary for the qualifying examination committee to be the same as the dissertation committee, a significant overlap between the two committees is desirable for continuity.

A student who fails the qualifying examinations may apply for the privilege of a second examination. Failure on the second examination will render a student ineligible to continue in the Ph.D. program at SMU.

Admission to Candidacy

Admission to a graduate program does not imply admission to candidacy for the doctoral degree. To be admitted to candidacy, the student must satisfy the language requirements, if any, in the program and must pass the qualifying examination in the program of study. Upon completion of these requirements, the department will recommend to the dean that the student be admitted to candidacy. The recommendation will be made within five months of the qualifying examination or satisfying the language requirement, whichever comes later. Supporting documents will include the student's degree plan and the qualifying examination report (ORGS Form 1).

Residence and Coursework

The Ph.D. degree normally requires at least 48 hours of graduate work, of which a maximum of 12 hours can be in dissertation research. Normally, a transfer student may be granted up to 24 hours of credit. Additional transfer credit may be granted only with the approval of the graduate dean. The 48 hours may include research, reading and dissertation courses. Some departments may require additional hours. (See department requirements for details.)

Continuous enrollment is required of Ph.D. students, unless they are on research leave. Students undertaking full-time research off campus may petition the department for a research leave of a maximum of two years. When such leaves are granted, the Office of Research and Graduate Studies should be kept informed. Students who do not enroll for two consecutive terms without formal research leave will have to reapply for admission to the program. Students who do not enroll for one term without formal research leave may petition the graduate dean for reinstatement of their student status. After a student has completed the required minimum credit hours toward the Ph.D. program, enrollment for research is possible without hourly credit or grades for four additional terms.

The minimum residence requirement is a total of 18 term hours completed within three terms of residence at SMU. Foreign students may need to satisfy additional residence requirements to comply with U.S. Immigration and Naturalization Service regulations.

Time Limits

Ordinarily a student enrolled for full-time study should pass the qualifying examination by the end of the third year. An extension of one year may be granted by the dean upon submission of a petition by the student and the endorsement of the student's department. Except under unusual circumstances, extensions beyond the fourth year will not be granted.

The doctoral dissertation should be submitted and accepted within five years after the student has been admitted to candidacy. An extension of one year can be granted by the dean. After this time, the students will be dropped from candidacy and can be readmitted only by passing a second qualifying examination, except under special circumstances. In such cases, new time limits will be set by the student's committee with the approval of the dean.

Time spent on research leaves will not be counted as part of the time limit. If a student must take an unavoidable leave of absence for medical or family reasons,

leaves may be granted without affecting time limits. The decision to grant such a leave of absence will be made by the department and approved by the graduate dean. In the case of part-time students, time limit requirements will be interpreted appropriately to allow for their part-time status.

Ordinarily, credit is not allowed for graduate courses (including transfers) that are more than six years old at the time of the qualifying examination. Should the time limits be exceeded, a department may petition the dean to revalidate the credits. Approval is granted only in cases of exceptional merit.

Dissertation

A candidate for the doctoral degree must present an acceptable dissertation within the major field of study. It must demonstrate that the candidate has technical competence in the field and has done research of an independent character. It must add to and modify what was previously known or present a significant interpretation of the subject based on original investigation.

Either at the time of the qualifying examination or later the candidate is required by the department to present the prospectus for the dissertation to a faculty committee. When this committee accepts the candidate's dissertation plan, the dissertation adviser will transmit a Dissertation Topic Report (ORGS Form 2) to the Office of Research and Graduate Studies for inclusion in the candidate's file.

Dissertation Defense

The defense is an examination administered by the student's dissertation and related material.

The Dissertation Committee shall consist of: 1) the major adviser, who will serve as chair; 2) at least two other full-time members of the candidate's major department; and 3) at least one external reviewer who is either a faculty member outside the candidate's department or, with the approval of the department chair and the graduate dean, a scholar not associated with the University. For all candidates the major adviser (or designate) must be a full-time member of the department. Faculty members with joint appointments (excluding courtesy appointments) are considered internal members of the departments only and may not serve as outside members of the committee. The Dissertation Committee is appointed by the department chair or the director of Graduate Studies with the approval of the dean after the presentation of the prospectus, given well before the dissertation defense.

The examination will be conducted by the committee and by any other members of the faculty who care to attend as nonvoting members. The chair of the examining committee will set a date, hour and place for the examination that is agreeable to the committee members and the candidate, with notification at least a week in advance. Notice of the dissertation defense should be distributed to all department faculty, the dean of the college and the graduate dean. A unanimous vote of the committee is necessary for approval of the examination. Students who fail the examination may be given a second examination, at a time to be determined by the committee, but not later than one year after the initial examination. Those who fail the examination the second time are thereby disqualified for a degree. The examination report will be forwarded to the dean for certification of the candidate for graduation (ORGS Form 3).

Preparing Dissertation for Submission

The basic requirements for preparing the dissertation are outlined in the *Thesis/ Dissertation Guide,* copies of which are available in the Office of Research and Graduate Studies and online at smu.edu/graduate.

The dissertation must be completed to the satisfaction of the student's dissertation adviser and Dissertation Committee, and the Office of Research and Graduate Studies. Deadlines for the submission of dissertations are outlined at the beginning of each term. Upon successful completion of the dissertation defense, the half-title page must be signed by the Dissertation Committee. Students are responsible for all fees, including those for electronic publishing and microfilming.

In submitting a dissertation, the student grants permission to the director of libraries at SMU to make copies at the director's discretion, upon the request of individuals or institutions.

GRADUATE DEGREES

The following table identifies graduate degrees awarded and departmental requirements with respect to entrance examinations, languages, and theses.

Field of Study	Degrees Offered	Language Requirement	Thesis/Dissertation Requirement
Anthropology	M.A. (en route to Ph.D.)	Proficiency in one language and statistics	Optional
	Ph.D.		Mandatory
Medical Anthropology	M.A. (36 hours)	Departmental examination in one language	Prohibited
Biological Sciences	M.S. (30 hours)	Individually prescribed	Mandatory
	M.A. (36 hours)	Individually prescribed	Prohibited
	Ph.D.	Individually prescribed	Mandatory
Chemistry	M.S. (30 hours)	None	Mandatory
	Ph.D.	None	Mandatory
Earth Sciences			
Geology or Geophysics	M.S. (30 hours)	None	Mandatory
Applied Geophysics	M.S. (33 hours)	None	Optional
Geology or Geophysics	Ph.D.	Credit for intermediate courses in one language, or test approved by the department	Mandatory
Economics	M.A. (30 hours)	None	Optional
	Ph.D.	None	Mandatory
Applied Economics	M.A. (36 hours)	None	
English	M.A. (30 hours)	Credit for intermediate courses in one language or ETS examination	Optional
	Ph.D. (60 hours)	Proficiency in one language	Mandatory
History	M.A. (30 hours)	Test administered by the department	Mandatory
	M.A. (36 hours)	Test administered by the department (special permission)	Mandatory
	Ph.D.	Test administered by the department	Mandatory

Field of Study	Degrees Offered	Language Requirement	Thesis/Dissertation Requirement
Mathematics			
Computational and Applied Mathematics	M.S. (33 hours) Ph.D.	None None	Optional Mandatory
Medieval Studies	M.A. (30 hours)	Competence, demonstrated by examination, in intermediate Latin and one foreign or medieval language	Mandatory
Physics	M.S. (30 hours) Ph.D.	None None	Optional Mandatory
Psychology			
Clinical	Ph.D. (70 hours)	None	Mandatory
Religious Studies	M.A. (30 hours)	Competence in one language other than native tongue, demonstrated by examination	Mandatory
	Ph.D.	Competence in two foreign languages, demonstrated by examination	Mandatory
Statistical Science	M.S. (30 hours) M.S. (36 hours) Ph.D.	None None None	Mandatory Prohibited Mandatory
Graduate Certificate			
Women's and Gender Studies	Certificate	None	None

GRADUATE RESIDENCE ACCOMMODATIONS

The Department of Residence Life and Student Housing operates two apartment residence halls designated primarily for graduate students.

Martin Hall, an efficiency apartment hall, houses single and married graduate students, and married undergraduate students.

Hawk Hall, a one-bedroom-apartment facility, houses married students (graduate and undergraduate) with families. Families with no more than two children may be housed in Hawk Hall. Also located in Hawk Hall is the SMU Preschool and Child Care Center.

Special Housing Needs

Students having special housing needs because of a disability should contact the Department of Residence Life and Student Housing prior to submitting the housing application. Whenever possible, the housing staff will work with that student in adapting the facility to meet special needs.

General Housing Information

Each apartment is equipped with a telephone, local telephone service, voice mail system and Ethernet connections to the University's computer system. All residence halls are air-conditioned and some have individually climate-controlled rooms. Washing machines and dryers are located in all residence halls. Meal plans are not required in graduate halls.

Applications for Residence

New graduate students should submit the completed application and contract to the Department of Residence Life and Student Housing with a check or money order for $100 made payable to Southern Methodist University for the nonrefundable housing deposit.

Priority of assignment is based on the date on which applications are received by the Department of Residence Life and Student Housing. Notification of assignment will be made by Residence Life and Student Housing. Rooms are contracted for the full academic year (fall and spring terms). Rent for the fall term will be billed and is payable in advance for students who register before August 1, and rent for the spring term will be billed and is payable in advance for students who register before December 1. Students who enroll after these dates must pay at the time of enrollment. Rent for the full academic year will be due and payable should a student move from the residence hall at any time during the school year. Accommodations for shorter periods are available only by special arrangement with the executive director of Residence Life and Student Housing before acceptance of the housing contract.

For more information, please visit the website at smu.edu/housing or contact the department: Department of Housing and Residence Life, Southern Methodist University, PO Box 750215, Dallas TX 75275-0215; phone 214-768-2407; fax: 214-768-4005; housing@smu.edu.

RECREATIONAL SPORTS

Dedman Center for Lifetime Sports

Dedman Center for Lifetime Sports (smu.edu/recsports) is a facility designed for recreational sports and wellness. The 170,000-square-foot expansion and renovation was completed in 2006. The center provides racquetball courts; aerobic studios; indoor running track; basketball; indoor and outdoor sand volleyball courts; climbing wall; bouldering wall; 25-meter, five-lane recreational pool; 15,000 square feet of fitness and weight equipment; lobby; and café. Various fitness classes are offered. These facilities are open to SMU students, faculty, staff and members.

Intramurals

Many opportunities for team and individual competition are available through intramurals. Various leagues provide year-round opportunities to participate in a wide variety of activities. The five major sports are football, volleyball, basketball, soccer and softball. Other sports and activities offered are bowling, golf, racquetball, tennis, track, swimming and game-room activities. Additional leadership opportunities are available for those interested in officiating or supervising various activities.

Sport Clubs

Sport clubs offer an opportunity for students interested in concentrated training and participation in a sport who do not want to train and devote the practice time required for NCAA competition. These student-sanctioned clubs, funded by the Student Senate, offer competition with other university/college club teams in baseball, badminton, cricket, crew, cycling, ice hockey, men's and women's lacrosse, martial arts, rugby, sailing, soccer, triathlon, volleyball, and wakeboarding.

Aquatics

SMU Aquatics features a five-lane, indoor recreational pool and outdoor, zero-depth entry fountain pool known as "The Falls." Students have opportunities to participate year-round in recreational swimming, sunbathing and competitive water sports such as water basketball, volleyball and polo. Classes offered include water fitness, adult and child swimming lessons, children's group lessons, and American Red Cross Lifeguard and Water Safety Instructor certifications. Both pools also are available for student group reservations.

Fitness

SMU Fitness offers group exercise classes, personal training sessions and massage therapy. The group exercise (Group X) classes are offered throughout the day to accommodate early birds, night owls and everyone in between. A plethora of different types of cardio, strength and flexibility classes are available. Experienced and knowledgeable trainers offer sessions to train clients, either one-on-one or in groups, to meet their personal fitness goals. Licensed massage therapists offer chair or full-body massages. All SMU Fitness programs have a fee for participation.

Outdoor Adventures

Outdoor Adventures comprises Outdoor Recreation (outdoor trips), The Rental Shop (renting outdoor equipment), SMU Climbing Center (climbing wall and bouldering wall), and Challenge and Team-Building Activities (incorporating a portable challenge course). SMU OA offers fun and challenging outdoor recreation activities, community-building programs and leadership opportunities through backpacking, rock climbing, kayaking, canoeing and more.

Mustang Band

Founded in 1917, the Mustang Band was named the "Best College Marching Band" in Texas in Kirk Dooley's *Book of Texas Bests.* Long known as "the hub of SMU spirit," the band represents the University at football and basketball games, produces the *Pigskin Revue* during homecoming and performs at special University- and community-related events. Membership is open to all SMU students by audition, regardless of major, and scholarships based on need and ability are available.

Spirit Squads

The Cheerleading Squad, Pom-Pom Squads and Peruna mascot are integral parts of SMU's spirit tradition and are national award winners, having participated in the NCA/NDA Collegiate National Championships. Along with the Mustang Band, they make SMU's spirit contingent a superb one.

HEALTH SERVICES

SMU Memorial Health Center

The University's health facilities are located in the SMU Memorial Health Center, 6211 Bishop Boulevard. An outpatient primary care clinic, specialty clinics, pharmacy and lab/X-ray facilities occupy the first floor. Counseling and Psychiatric Services and the Office for Alcohol and Drug Abuse Prevention are located on the second floor. The Health Center (smu.edu/healthcenter) is accredited by the Accreditation Association for Ambulatory Health Care Inc.

Outpatient Medical Services. SMU provides a convenient, economical medical clinic for diagnosis and treatment of illness and injury, as well as for immunizations and continuation of treatment such as allergy injections. The clinic is staffed by physicians, physician's assistants, registered nurses, medical assistants, and lab and X-ray technologists. Physicians are available by appointment from 8:30 a.m. to 4 p.m., Monday through Friday. For Saturday clinics and extended hours, see the Health Center website (smu.edu/healthcenter). For appointments and health information, call 214-768-2141. After hours and during holidays, a nurse advice line is available at 214-768-2141.

Patient Observation. When ordered by a staff physician, a student may be held in observation between 8:30 a.m. and 5 p.m., Monday through Friday. Observation is available for most types of nonmajor medical treatment. When necessary, students are referred to medical or surgical specialists in Dallas. The patient will be responsible for the costs of these services.

Acute/After Hours Care. For emergency care after clinic hours, it is recommended that students call 911 or go to a hospital emergency room. Refer to the Health Center website (smu.edu/healthcenter) for hospital information and location of an urgent care facility.

Costs. Undergraduate and graduate students paying the full fee (which includes a health service fee) receive fully covered primary care physician services at the Health Center for that term. Appointments with the gynecologist or dermatologist and lab, X-ray, pharmacy and supplies costs will be charged at reasonable rates. Graduate students not paying full fees have the option to pay the Health Center fee of $140 per term or $50 per visit, not to exceed $140 per term.

Mandatory Health Insurance Policy. To ensure that students have appropriate health care coverage, SMU requires its students to maintain insurance as a condition of enrollment. All international students enrolled in one or more credit hours are required not only to maintain coverage, but their coverage must be in the SMU

Student Insurance Plan. International students may apply for a waiver if: 1) the student is covered by a comparable embassy plan or 2) the student can provide documented evidence of comparable health insurance coverage by a U.S. employer, including medical evacuation and repatriation. All domestic students taking at least nine credit hours are required to: 1) provide proof of comparable U.S. health coverage or 2) enroll in the SMU Student Insurance Plan. All students may view the plan benefits, waive coverage and/or enroll online at ahpcare.com/smu, or call Academic Health Plans at 888-308-7320 for further details. A student must be enrolled in at least one credit hour to qualify for the SMU Student Health Plan. Insurance packets are also available at the Health Center. Domestic students who have other insurance will be provided an itemized receipt upon request at the time of service. This receipt is adequate to file with insurance companies for reimbursement. Health insurance is separate from the student health-center fees and is paid for independently.

Pharmacy. A complete pharmacy with registered pharmacists is open from 8:30 a.m. to 5 p.m., Monday through Friday. Many prescription plans are accepted.

X-ray and Laboratory Services. X-ray and laboratory tests are available for nominal fees. All X-rays are interpreted by a radiologist.

Immunizations. All students are required to have an SMU medical history form on file in the SMU Health Center before registration. To comply with SMU policy, all students must provide proof of immunizations against measles, rubeola (red or regular measles), and rubella (German or three day measles). These immunizations must be documented by a physician, public health record or school health record. Students will not be allowed to register without compliance. Students are encouraged to check their Access.SMU account for health forms and immunization status. Immunizations are available at the Health Center.

Class Absence Due to Illness. Students should schedule appointments with physicians at times when classes will not be missed. The Health Center does not issue excuses from classes for illness. Refer to the Health Center website (smu.edu/healthcenter) for the Class Absence Policy.

Notification of Parents. Students are encouraged to call one or both parents when ill. Parents or guardians will be notified in cases of life threatening illnesses. The Health Center staff may not speak to parents without the student's permission.

Health Service Records. All health service records are confidential. A copy of medical records may be released to a physician only with a written release by the student. Records are not made available to parents, SMU administrators, faculty or staff without the student's written consent.

Counseling and Testing Services

Counseling and Psychiatric Services. CAPS provides psychiatric evaluation, crisis intervention and group/individual/couples psychotherapy for students. All interviews are conducted on a voluntary and confidential basis. There is no charge to students who have paid the University health fee. Students can seek confidential help for concerns such as anxiety, depression, relationship issues, career/life planning, learning disabilities, sexual identity, eating/body image concerns and sexual assault/sexual harassment matters. Any laboratory tests or pharmaceuticals ordered will be charged to the student. Appointments may be scheduled between 8:30 a.m. and 5 p.m., Monday through Friday, by calling 214-768-2877.

Testing Services. Testing Services offers testing to the Dallas-area community. These services include on-campus administration of national testing programs such as the SAT, LSAT, GRE Subject and PRAXIS. Other testing offered includes

CLEP tests and correspondence examinations for other universities. For additional information, call the center at 214-768-2269.

Office for Alcohol and Drug Abuse Prevention. This office provides a free and confidential source of help and information to the SMU community on issues related to substance abuse and addiction. Appointments for counseling or assessment can be made between 8:30 a.m. and 5 p.m., Monday through Friday, by calling 214-768-4021. For more information, visit smu.edu/liveresponsibly.

Office of Health Education and Promotion. This office serves as a resource for health information on campus. The office promotes programs and activities that focus attention on health-related issues affecting college students. Students can get involved with health education on campus through the Peer Advising Network. For more information, visit smu.edu/healthcenter/healtheducation or call 214-768-2393.

SMU PRESCHOOL AND CHILD CARE CENTER

The SMU Preschool and Child Care Center is a fully licensed center open throughout the year to students, faculty and staff. Children ages 1 month through 5 years are accepted, subject to space availability. Hours of operation are 7:45 a.m. to 5:30 p.m. Fees are adjusted to the age of the child. For more information, please contact the center: Director, SMU Preschool and Child Care Center, Southern Methodist University, Dallas TX 75275; 214-768-2278.

ACADEMIC INTEGRITY AND CODE OF CONDUCT

The Honor Code of Southern Methodist University

Intellectual integrity and academic honesty are fundamental to the processes of learning and of evaluating academic performance, and maintaining them is the responsibility of all members of an educational institution. The inculcation of personal standards of honesty and integrity is a goal of education in all the disciplines of the University.

The faculty has the responsibility of encouraging and maintaining an atmosphere of academic honesty by being certain that students are aware of the value of it, that they understand the regulations defining it and that they know the penalties for departing from it. The faculty should, as far as is reasonably possible, assist students in avoiding the temptation to cheat. Faculty members must be aware that permitting dishonesty is not open to personal choice. A professor or instructor who is unwilling to act upon offenses is an accessory with the student offender in deteriorating the integrity of the University.

Students must share the responsibility for creating and maintaining an atmosphere of honesty and integrity. Students should be aware that personal experience in completing assigned work is essential to learning. Permitting others to prepare their work, using published or unpublished summaries as a substitute for studying required material, or giving or receiving unauthorized assistance in the preparation of work to be submitted are directly contrary to the honest process of learning.

Students who are aware that others in a course are cheating or otherwise acting dishonestly have the responsibility to inform the professor and/or bring an accusation to the Honor Council.

Students and faculty members must share the knowledge that any dishonest practices permitted will make it more difficult for the honest students to be evaluated and graded fairly and will damage the integrity of the whole University. Students should recognize that both their own interest and their integrity as individuals would suffer if they condone dishonesty in others.

The Honor System

All students at SMU are subject to the jurisdiction of the Honor Code and as such will be required to sign a pledge to uphold the Honor Code (smu.edu/studentlife). The Honor Council is composed of a minimum of 27 members selected through an application and interview process organized by the Honor Council Executive Board. Five faculty members will be nominated by the Faculty Senate. The council's responsibility is to maintain and promote academic honesty.

Academic dishonesty includes plagiarism, cheating, academic sabotage, facilitating academic dishonesty and fabrication. Plagiarism is prohibited in all papers, projects, take-home exams or any other assignments in which the student submits another's work as being his or her own. Cheating is defined as intentionally using or attempting to use unauthorized materials, information or study aids in any academic exercise. Academic sabotage is defined as intentionally taking any action that negatively affects the academic work of another student. Facilitating academic dishonesty is defined as intentionally or knowingly helping or attempting to help another to violate any provision of the Honor Code. Fabrication is defined as intentional and unauthorized falsification or invention of any information or citation in an academic exercise.

Suspected cases of academic dishonesty may be handled administratively by the appropriate faculty member in whose class the alleged infraction occurred or may be referred to the Honor Council for resolution. Suspected violations reported to the Honor Council by a student or by an instructor will be investigated and, if the evidence warrants, a hearing will be held by a board composed of a quorum of four members of the Honor Council.

Any appeal of an action taken by the Honor Council shall be submitted to the University Conduct Council in writing no later than four calendar days (excluding school holidays) after notification of the Honor Council's decision.

Code of Conduct

The following are University procedures and standards with which every student must become familiar. The University considers matriculation at SMU an implicit covenant and a declaration of acceptance on the part of the student of all University regulations. The Student Conduct and Community Standards Office (smu.edu/studentconduct), part of the Office of the Dean of Student Life, assists students in their personal development by providing a fair conduct process that issues consistent sanctions for behavior that is incongruent with the University's expectations for students.

Conduct. Standards of conduct are established through faculty, student and administrative efforts and are under continuous evaluation by the entire University community in order to assure reasonable and fair limits. At SMU, the student is assumed to have a high degree of loyalty and responsibility to the University and its well-being, as well as to himself or herself in personal, social and intellectual pursuits; the student's behavior both on and off campus is evidence of this.

Students at SMU will discover that they are encouraged to exercise a great amount of personal freedom as well as accompanying responsibilities. Through their personal capacities for intelligent thought and action, mature students understand that there are situations in which certain behavior must be modified for the benefit of others. The University stands firm in its commitments to the rights and freedoms of students, expecting in return the same respect and concern.

The University expects all students to be responsible citizens and to abide by all federal, state and local laws. Personal irresponsibility – including, but not limited

to, that evidenced by dishonesty, gambling, hazing, irresponsible conduct, and the misuse of drugs and alcohol – renders a student subject to disciplinary action. Although most specific regulations pertain to a student's behavior while on campus, a lack of personal responsibility and integrity is always considered grounds for discipline no matter where it occurs. Due respect for the entire University community, faculty, staff and one's fellow students is always expected.

Students are required to identify themselves when asked by a properly identified faculty or staff member, or by another student serving as a University staff member. Persons who are not members of the University community and without business on campus may be asked to leave.

Disciplinary Action. Clear disciplinary procedures are an important part of the mission of SMU as an educational institution. The intent of the system of due process at SMU is to be educational and not merely punitive for students. The goal continues to be to produce quality citizens. It is pertinent to the purpose of discipline to remember that self-discipline is part of the entire educational process, whereby the student becomes more fully aware of the importance of responsibility for oneself and others. Anytime a student displays irresponsible behavior, that student will be subject to discipline.

Depending on the degree of misconduct, a student may be subject to sanctions ranging from a conduct reprimand to expulsion from the University. Should a student be asked to leave the University, he or she should do so in an expeditious and peaceful manner. The student should remain off campus until he or she receives written permission from the Office of the Dean of Student Life to return to campus. In the event of such separation, a student is still responsible for University financial obligations.

The University believes in student representation on all disciplinary bodies. To ensure fairness and due process for all students in the conduct process, the student is granted an impartial hearing and the right to appeal to the University Conduct Council. A student who is appealing a sanction may remain in school until the decision and penalty are reviewed, unless considered harmful to the University, to any individual, or to himself or herself. All actions by the council are subject to presidential review.

Having voluntarily enrolled as students at Southern Methodist University and assumed a place in the University community, all students are presumed to be knowledgeable of, and have agreed to abide by, the rules and regulations set forth in the Student Code of Conduct, as outlined in the *SMU Student Handbook*. This book is available from the Office of the Dean of Student Life: Hughes-Trigg Student Center, third floor; smu.edu/studentlife.

Loss of Personal Property. The University is not responsible for the loss of personal property belonging to students in any building or on any grounds owned by the University, whether the loss results from theft, fire or unknown cause.

SERVICES FOR STUDENTS WITH DISABILITIES

The Office of Services for Students with Disabilities strives to support the educational, career, social and recreational choices of SMU students with documented disabilities through coordination of services and reasonable accommodations. It is the responsibility of the students themselves to establish eligibility for services or accommodations through this office. They must provide: 1) appropriate current documentation in keeping with SMU's documentation guidelines and 2) a request indicating what kind of assistance is being sought, along with contact information.

Documentation takes one to two weeks to be reviewed. Students with disabilities are encouraged to contact the office at 214-768-4557 to learn what opportunities and services are available. It is recommended that contact be made as early as possible so students can establish their eligibility for services in a timely fashion and take full advantage of services for which they may be eligible. For more information, please visit the website at smu.edu/OSSD.

SMU LIBRARIES

Service to Southern Methodist University students, faculty and staff is the primary goal of all libraries at SMU. The libraries of the University contain more than 2.9 million volumes. PONI, a fully interactive Web- and Windows-based client-server system, features access to bibliographic records of materials housed in all SMU libraries and hypertext links to other databases, digitized collections and relevant websites.

SMU libraries rank first in total volumes held among non-ARL (Association of Research Libraries) universities in the United States. The SMU libraries comprise the largest private research library in the Southwest and rank third within the region in total volumes, after the University of Texas at Austin and Texas A&M University. SMU libraries are one of the greatest assets of the University.

The University's library system is divided into a number of different units:

1. Central University Libraries (reporting to the Office of the Provost).

2. Underwood Law Library (reporting to the Dedman School of law).

3. Bridwell Library (reporting to the Perkins School of Theology).

4. Business Information Center (reporting to the Cox School of Business).

The Business Information Center

The Business Information Center is located in room 150 of the Maguire Building. The mission of the BIC is to provide the SMU community with business information, regardless of format; support the integration of information and technology into the curriculum; and act as a center for research and development for state-of-the-art information technology applications in the business education field. In support of this mission, the BIC offers the SMU community both quiet and group study areas; individual and group computer areas consisting of 70 computer workstations; a multimedia studio; a group presentation practice room; a periodicals area; facility-wide wireless access; over 150 electronic resources; and a variety of print resources, including the Hillcrest Foundation International Resource Library, the Edwin L. Cox Business Leadership Center Resource Collection, the Cary M. Maguire Energy Institute Resource Collection and the Career Management Center Library. Librarians are available all hours that the BIC is open, offering reference assistance both in-person and virtually via e-mail and telephone. Librarians provide course specific, in-class instruction at the request of instructors and lead workshops on performing business research.

Bridwell Library

Bridwell Library of the Perkins School of Theology is the University's principal research resource for the fields of theology and religious studies. It offers a collection of over 350,000 volumes and 1,200 current periodical titles and provides access to a wide array of online full-text journals and databases. Among the library's special collections are significant holdings in early printing, English and American Methodism, theology, religion, and the book arts. The interpretation of these collections is accomplished variously through lectures, publications and exhibitions. Reference librarians are available to help students discover and use the many resources of Bridwell Library.

Underwood Law Library

Underwood Law Library, one of the 30 largest law libraries in the country and the largest private law library in the Southwest, houses more than 630,000 volumes and primarily serves the faculty and students of the Dedman School of law. The collection includes state and federal legislative, judicial and administrative materials; law periodicals; law treatises; U.S., international and foreign documents; and U.S. government documents relating to the legal profession. Strengths of the collection are in taxation, securities, corporate law, labor law, air and space law, commercial and banking law, constitutional law, and law and medicine. The Kay and Ray Hutchison Legal Resource learning Center in the Underwood Law Library is a computer-learning lab located on the third floor.

Central University Libraries

The largest of the SMU library units is Central University Libraries, with holdings of more than 2.1 million volumes. CUL comprises Fondren Library, the Hamon Arts Library, the Science and Engineering Library, the DeGolyer Library and SMU Archives, the Institute for the Study of Earth and Man Reading Room, and the Norwick Center for Media and Instructional Technology. CUL also supports SMU programs at the Legacy campus and SMU-in-Taos.

Fondren Library, with more than one million volumes of books, government publications and bound journals, serves students and faculty in the areas of humanities, social sciences, business and education. Its Information Commons provides a single location within the library where students can use library books and online resources, as well as the latest computer software and technology, to prepare their assignments. Fondren Library is a selective depository for government information resources and has large electronic collections of retrospective periodicals and special collections in the humanities and social sciences.

Strengths of the Fondren Library include, but are not limited to, classical studies, late 18th- and early 19th-century English literature, American history, Texas history, contemporary biography and literature, anthropology, political science, economics, and other social sciences. Fondren Library also provides reading materials placed on reserve by classroom faculty and access to holdings from other libraries nationwide via interlibrary loan.

Hamon Arts Library, located in the Owen Arts Center of the Meadows School of the Arts, serves students and faculty in the areas of visual art, art history, cinema, communications, dance, music and theater. With more than 180,000 volumes of books, sound recordings and video recordings, the library's collections support the Meadows curriculum and are particularly strong in European and American arts. The library also provides conference room facilities; group audio-visual study and presentation rooms; and public computers for research, study and arts-specific software projects.

The Jerry Bywaters Special Collections wing has as its focus the art and artists of the Southwest, the musical life of Dallas, regional theater history, fashion history, and regional architecture. The G. William Jones Film and Video Collection, founded in 1967, holds over 10,000 films and videos on a wide array of subjects and in all formats. The Jones Collection is best known for its Tyler, Texas, Black Film Collection and for the Sulphur Springs Collection of pre-nickelodeon films.

The Science and Engineering Library contains holdings of more than 700,000 volumes and serves students and faculty in the areas of the sciences and engineering. The Science and Engineering Library is responsible for the University's map collection, which includes more than 220,000 topographic and geologic maps and

aerial photographs, and the DeGolyer Earth Sciences collection of more than 15,000 geological volumes.

CUL has a corporate research service – **IIS** – housed in the Science and Engineering Library, providing cost-recovery, fee-based information services to the business and corporate community outside the University.

DeGolyer Library is a noncirculating special collections branch of CUL that contains more than 120,000 volumes. In addition to rare books, it holds over 2 million manuscripts, 500,000 photographs, 2,500 newspaper and periodical titles, 2,000 maps, and an extensive collection of ephemera that includes the largest collection of Texas bank notes in the country. The DeGolyer Library is open to all students and faculty. Great strengths of the DeGolyer Library include a large collection of books on early voyages and travels, especially those bearing on the European discovery and exploration of the New World. The collection of Western Americana is numbered among the finest in the country, and the library has exceptionally well-developed collections in the fields of business history, such as the JCPenney archives, and transportation history, in particular the history of railroads. Its holdings in the history of science and technology, which include the Texas Instruments archives, have much to offer the researcher. Literary collections include a respectable range of English and American authors and literary genres, from a 16th-century edition of Chaucer's *Canterbury Tales* to dime novels and comic books. DeGolyer collections also afford numerous opportunities for interdisciplinary research in such fields as American studies, Southwestern studies, women's studies, popular culture, the history of photography and the history of the book.

University Archives, part of the DeGolyer library, is the official repository for SMU records and other materials of historical importance. The archives contain manuscripts, photographs, documents and memorabilia concerning the establishment and growth of the University. SMU administrators, faculty, local historians and media representatives are its principal users, but students and visiting scholars often use its materials for a variety of research projects.

The ISEM Reading Room, with 10,000 volumes, serves students and faculty of the Institute for the Study of Earth and Man. It contains a wealth of information relating to anthropology and geological and geophysical sciences.

The Norwick Center for Digital Services in CUL encompasses student multimedia and collaborative technology areas, digitization/production services, and a screening room. The Student Multimedia Center provides students with access to high-end computers, software, collaborative spaces and staff assistance to develop a variety of digital projects such as DVDs and Web video, digital portfolios, and other media-intensive projects. The Library Digital Projects Office focuses on digitizing library collections for preservation and increased access. The screening room allows for video screenings and computer projection for instruction and training.

LABORATORIES AND RESEARCH FACILITIES

The University provides many laboratories and much equipment for courses in accounting; anthropology; art; biology; chemistry; languages; earth sciences, communication arts; psychology; physics; health and physical education; dance; music; theater; statistics; and civil, computer, electrical, environmental and mechanical engineering.

The teaching laboratories of the departments of Biological Sciences, Chemistry, Earth Sciences and Physics are housed in the **Fondren Science Building** and in the

Dedman Life Sciences Building. Virtually all teaching laboratories and support facilities in the buildings have been remodeled and updated.

Students have access to a wide array of specialized instrumentation and laboratory equipment fundamental to studies in the natural sciences, including spectrophotometers, high-performance liquid chromatographs, scintillation counter, fluorescence-activated cell sorter, scanning laser confocal microscope, electron resonance spectrometer, X-ray diffractometers, mass spectrometers and an atomic absorption spectrometer. Advanced undergraduate research is also supported by tissue culture and animal care facilities, as well as several departmental computer laboratories.

SMU-in-Taos, Fort Burgwin, is located 10 miles south of Taos, New Mexico, at an elevation of 7,500 feet. The facility includes classrooms, laboratories, offices, a computer center and a library, as well as living accommodations for students and faculty. The Fort Burgwin archaeology curation facility houses over one million archaeological specimens from research projects conducted by SMU faculty and students. Northern New Mexico offers a multiplicity of research opportunities for both natural and social scientists. Pot Creek Pueblo, located on the fort's property, is one of the largest prehistoric archaeological sites in the Taos region.

The N.L. Heroy Science Hall houses the departments of Anthropology, Earth Sciences, Sociology and Statistical Sciences, as well as the Institute for the Study of Earth and Man.

The Institute for the Study of Earth and Man was created in 1966 by a gift from W.B. Heroy, Sr. Its purpose is to support research at the interface of humans, Earth and the environment.

The Department of Earth Sciences operates several unique laboratories, including the following:

The Dallas Seismological Observatory, established by the Dallas Geophysical Society, is maintained and operated by the University and now monitors remote seismic and infrasound stations in southwestern Texas near Lajitas, seismically one of the world's quietest regions. The Lajitas array is used to test technology designed to detect small earthquakes from great distances. In addition to the Lajitas seismic array, SMU operates seismic and infrasound arrays at Mina, Nevada; Grenada, Mississippi; and overseas locations. Data collected by the observatory are available to the faculty and advanced students who wish to undertake basic research in seismology, tectonics or infrasound.

The Ellis W. Shuler Museum of Paleontology is a research museum affording opportunities for advanced study of fossil faunas and floras and their climatic and paleoecologic significance. The collection, which specializes in vertebrate paleontology, includes more than 150,000 fossils from the United States, Central America and northeastern Africa.

The Pollen Analysis Laboratory is operated in conjunction with the Shuler Museum of Paleontology. The laboratory serves SMU research projects focused on the reconstruction of past vegetation, past climate and paleoecology at localities around the world. The facility includes two fume hoods, glassware, centrifuges, scales, a convection oven and storage space necessary for the dry and wet processing of sediment samples for their pollen content. Microscopic analysis of the resulting pollen sample residues takes place in a separate laboratory housing transmitted light microscopes, a comparative collection of modern pollen, and a small paleobotany and palynology research library. Work in this laboratory is often supplemented by facilities in the Variable Pressure Scanning Electron Microscope Laboratory.

The Geothermal Laboratory is the focus of an extensive program of research in the thermal field of the Earth. Geothermal energy resources and the thermal fields of sedimentary basins are special topics of concentration. The research is worldwide in scope. Specialized equipment for the measurement of thermal conductivity of rocks and for the measurement of accurate, precise temperature logs in deep wells is available for research purposes. Services are provided to other institutions and research centers on a contractual basis.

The Hydrothermal Laboratory contains equipment to reproduce the pressures and temperatures existing to midcrustal depths. It contains two extraction-quench sampling bombs that permit withdrawal of solution during the progress of a run to pressures of 3 kbar and 750ºC. There are also 10 cold-seal reaction vessels. In addition, 1 atm furnaces are available that can be used to temperatures of 1400ºC.

The Electron Microprobe Laboratory contains a fully automated JEOL 733 electron microprobe with four wavelength dispersive X-ray spectrometers, a Link eXL energy dispersive X-ray and associated sample preparation equipment. It is available on a regular basis for various research projects in the Institute for the Study of Earth and Man, the University and other research institutions.

The Stable Isotope Laboratory is a general research facility available to support both academic and student research in the University and in other research centers. The laboratory contains three automated gas-source, magnetic-sector isotope ratio mass spectrometers as well as vacuum extraction lines for converting natural materials (solids, liquids and gases) into gases suitable for measuring the isotope ratios of hydrogen, carbon, nitrogen and oxygen at natural abundance.

The Variable Pressure Scanning Electron Microscope Laboratory contains a Zeiss SMT 1450 VPSE SEM used for generating electron photomicrographs with 5-nanometer resolution. The SEM Laboratory is open to researchers and students from Earth Sciences, Environmental Sciences, Engineering and Chemistry. The SEM Laboratory is also equipped with an Edax energy dispersive X-ray system for quantitative determination of chemical compositions of the imaged materials.

The X-ray Diffraction Laboratory houses a Rigaku Ultima III diffractometer for the X-ray identification of materials with a crystalline structure and is open to researchers and students from Earth Sciences, Chemistry, Environmental Sciences and Engineering.

MUSEUM

The Meadows Museum, founded by the late philanthropist Algur H. Meadows and located at 5900 Bishop Boulevard, houses one of the finest and most comprehensive collections of Spanish art outside of Spain, as well as selected masterpieces of modern European sculpture from Rodin and Maillol to David Smith and Claes Oldenburg. The permanent collection of 670 objects includes paintings, sculpture, decorative arts and works on paper, from the Middle Ages to the present. Artists represented include El Greco, Velázquez, Ribera, Zurbarán, Murillo, Goya, Picasso and Miró. The Meadows Museum hosts a regular program of loan exhibitions each year in its temporary exhibition galleries and sponsors an active program of public lectures, tours, films, concerts and symposia, as well as children's art programs and family days throughout the year. Museum collections are often utilized by SMU faculty in their courses. The museum membership program includes exhibition previews, tours of private collections and opportunities for travel. Docent tours of the collection are available to school, University and adult groups. The Meadows Museum, in addition to its collection, houses a museum store and special event rooms.

SPECIAL ACADEMIC PROGRAMS

HART eCENTER
Guildhall at SMU

The Guildhall at SMU is the first digital game development program to be based at a research university. The program has been accredited by the Southern Association of Colleges and Schools (SACS). It offers an 18-month program that prepares students to work in the digital games development industry. The program has three tracks: art creation, software development and level design. Students who successfully complete the program will receive a certificate from the Hart eCenter at SMU.

ENGLISH AS A SECOND LANGUAGE PROGRAM
John E. Wheeler, **Director**

Students whose first language is not English may encounter special challenges as they strive to function efficiently in the unfamiliar culture of an American university setting. The Office of General Education offers the following ESL resources to students from all schools and departments of SMU.

The Courses (ESL)

1001. ESL Communication Skills. The goal of this course is to improve ESL students' oral and aural interactive skills in speaking, giving presentations, pronunciation, listening and American idiomatic usage so they may become more participatory in their classes and integrate more readily with their native English-speaking peers. It is designed to meet the needs of both undergraduate and graduate students who may be fully competent in their field of study yet require specialized training to effectively communicate in an American classroom setting. The course is noncredit and no-fee, and is transcripted as Pass or Fail. ESL Program approval is required, and students may apply online at smu.edu/esl.

1002. ESL Communication Skills II. Building on skills developed in ESL 1001, students make use of their knowledge and practice to explore various aspects of American studies. In addition to speaking and presentation skills, reading and writing are also exploited as a means for students to gain a deeper understanding of American culture, customs, attitudes and idiomatic use of the language. The course is noncredit and no-fee, and is transcripted as Pass or Fail. ESL 1001 is recommended as a precursor but is not a prerequisite. ESL Program approval is required, and students may apply online at smu.edu/esl.

1300, 1301, 1302. ESL Rhetoric. The ESL sequence of first-year writing aims to provide students with the tools they will need to successfully complete writing assignments required of them during their University coursework. The ultimate goal of the class is to bring students' analytical reading and writing skills in line with the standards expected of their native English-speaking peers. Building on the principles of effective writing taught in regular rhetoric classes, students are given extra practice in vocabulary development, grammar skills, standard American English pronunciation and conversational fluency. The 1302 courses are specially designed around themes that are pertinent to the realities and experiences of non-native speakers of English. ESL sections of rhetoric grant students the same amount of credit as do regular rhetoric classes, and "ESL" will not appear on the transcript. ESL Program approval is required.

20XX. Intensive English Program (IEP). All 2000-level courses are exclusive to IEP. This multilevel, year-long program is designed to prepare students and professionals for academic success at the university level. The course of study consists of English for academic purposes, TOEFL-related skills and American culture. It is open to currently enrolled and newly incoming students, as well as to those not affiliated with SMU. On-campus housing and meals are available during the six-week summer term. This is a noncredit, nontranscripted program, and separate tuition fees will be charged. ESL Program approval is required, and the application package may be downloaded via the IEP link at smu.edu/esl.

3001. Advanced Grammar for Writers. This course helps students develop their grammar and writing skills within the context of academic readings. Problem areas of English grammar and style are explored through periodic assignments, research documentation methods

and a final research project. The course is free of charge, noncredit bearing, and will appear on the transcript as Pass or Fail. ESL Program approval is required, and students may apply online at smu.edu/esl.

3002. Advanced Academic Writing. Building on principles of grammar and style covered in ESL 3001, this course helps students further improve the writing skills needed for their particular academic careers, using academic texts as a basis for out-of-class writing assignments and a final research project. The course is free of charge, noncredit bearing, and will appear on the transcript as Pass or Fail. ESL Program approval is required, and students may apply online at smu.edu/esl.

4001. ESL Pronunciation Skills. Students improve their pronunciation by focusing on sentence stress, rhythm, intonation and body language while learning to mimic American speech patterns. With the instructor's assistance and extensive individual feedback, students develop personal strategies and exercises to become more aware of their own weaknesses. The course is free of charge, noncredit bearing, and will appear on the transcript as Pass or Fail. ESL Program approval is required, and students may apply online at smu.edu/esl.

Conversation Buddy Program

Once at the beginning of each term, all students are notified via campus e-mail of this opportunity to practice their language skills in an informal, one-on-one setting outside the classroom for one to two hours a week. Every effort is made to match native speakers of English with a native speaker of a language or culture in which they may have an interest. In this way, both the ESL student and the native English speaker benefit from a two-way language exchange. To apply for a Conversation Buddy, send an e-mail to smithjr@smu.edu.

ESL Self-Study Lab

A collection of audio- and videotapes plus computer software is available for self-study use at the Fondren Library Information Commons. Students will find materials to help them improve their pronunciation, listening, vocabulary and grammar skills.

SMU-IN-TAOS

The University maintains an academic campus at Fort Burgwin, located 10 miles southeast of Taos, New Mexico. SMU-in-Taos is open for summer study each year, offering courses in the humanities, natural and social sciences, business, and performing and studio arts, as well as archaeological research. The campus plans a full fall term beginning in 2009.

Students are housed in small residences called *casitas*. Each residence has separate dorm rooms, complete lavatory and shower facilities, and a large study area with fireplace. Classrooms, offices, an auditorium, dining hall, library, computer lab and laundry facilities also are located on campus.

The campus is home to both Pot Creek Pueblo and historic Fort Burgwin. Pot Creek Pueblo, one of the largest prehistoric sites in the northern Rio Grande Valley, is located on the property. This site is one of the ancestral homes of modern-day Taos and Picuris pueblos, and was occupied from A.D. 1250 to 1350.

Historic Fort Burgwin was originally established in 1852. The fort served many purposes, chief among them to protect area settlers, prior to its abandonment in 1860, just before the Civil War. Reconstructed, the fort now serves as office and classroom space for campus academic programs.

In 2009, three summer terms will be offered in Taos: May term, June term and August term. May and August are short, intense terms in which students may take up to four credit hours. June term is a longer, more traditional summer term that allows students to take up to nine hours of coursework. Course offerings vary year-to-year and are designed to be relevant to the Southwest. Courses are heavily field

trip-oriented to best take advantage of the campus's proximity to important Northern New Mexico cultural sites. Plans for a full 15-credit fall term are planned for 2009, pending the completion of additional student housing and campus facilities.

Literature describing the campus and its programs is available from the SMU-in-Taos Office, Southern Methodist University, PO Box 750145, Dallas TX 75275, 214-768-3657. Course descriptions and additional information can be found at smu.edu/taos, or e-mail at smutaos@smu.edu.

SMU-IN-PLANO

In the fall of 1997, SMU opened a satellite campus in Plano's Legacy Business Park and expanded its reach into North Texas. The journey of SMU-in-Plano began with a few well-defined goals: 1) to extend SMU's resources to meet the educational needs of residents in rapidly growing Collin County and beyond, 2) to make it more convenient for working professionals to enroll in graduate-level programs necessary to advance their careers and 3) to collaborate with area businesses by offering programs to serve the training needs of their employees, as well as to provide corporate meeting space.

Today, SMU-in-Plano serves more than 800 adult students (excluding enrollment in noncredit courses) through a variety of evening and weekend programs leading to Master's degrees and/or professional certificates in business administration, counseling, dispute resolution, education and learning therapies, engineering, and digital game technology (The Guildhall). During the summer, nearly 2,000 children participate in a variety of programs designed to enhance their academic skills. The campus is set on 16 landscaped acres and consists of four buildings with close to 200,000 square feet and more than 50 classrooms, seminar spaces and computer labs. An additional nine acres adjacent to the facility gives SMU-in-Plano room to grow in the future.

For more information, visit the website at smu.edu/plano or contact SMU-in-Plano, 5236 Tennyson Parkway, Plano TX 75024; telephone 972-473-3400.

OAK RIDGE ASSOCIATED UNIVERSITIES (ORAU)

Since 1953, students and faculty of Southern Methodist University have benefited from its membership in Oak Ridge Associated Universities. ORAU is a consortium of colleges and universities and a management and operating contractor for the U.S. Department of Energy 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 (the DOE facility that ORAU operates), undergraduates, graduates, postgraduates and 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.

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 Scientist Program and various services to chief research officers.

For more information about ORAU and its programs, contact Dr. James E. Quick, ORAU Councilor for Southern Methodist University, at 214-768-4345, or Monnie E. Champion, ORAU Corporate Secretary, at 423-576-3306; or visit the ORAU home page at orau.gov.

Office of Information Technology

The Office of Information Technology, located on the fourth floor of the Blanton Student Services Building, is responsible for providing computing and communications services in support of the academic and administrative functions for students, faculty, staff, alumni and patrons of the University. These services include an SMU e-mail account, access to enrollment and financial data online, Internet access both on and off campus, telephone services, Web-based services, technical support, and a variety of software and hardware discounts.

SMU offers high-speed network connections throughout campus. Students can take advantage of both wired and wireless connections throughout all areas of the residence halls. Wireless coverage also extends throughout the campus in most classrooms, libraries, common areas and several outdoor locations. In addition to on-campus Internet connections, OIT provides off-campus connections through dial-up access and virtual private networks.

All students receive an SMU e-mail account, which remains active throughout their enrollment at the University. The e-mail account may be accessed online via webmail.smu.edu. In addition, students have access to a variety of Web-based services, including Access.SMU; personal Web space; network storage space; and academic applications, including the Blackboard Course Management System. All academic information including grade history, financial information, transcripts and class registration is available through the Access.SMU system.

The OIT Help Desk provides technical support for most computing issues from 7:30 a.m. to 6:30 p.m., Monday through Thursday, and from 7:30 a.m. to 5:30 p.m. on Fridays. Both phone and in-house support is available for on- and off campus connectivity issues and computer virus issues. The Help Desk also offers phone support for the Microsoft Office Suite and other common applications.

Although most students have their own computers, there are a number of public computer labs available for use. Labs are located in each of the residence halls and throughout the campus libraries. Almost all of the labs contain both Mac and PC workstations and support a variety of programs. There is also 24-hour computer access available in the Hughes-Trigg Student Center.

The Computer Corner by HiEd, located in the Hughes-Trigg Student Center, is the on-campus computer store. It offers a number of discounts on hardware and other peripherals. Students also may take advantage of software discounts on Microsoft and Adobe applications through a campus license agreement. Computer repair service is offered on a per-charge basis.

OIT also provides on-campus telephone and voicemail services and discounts on cellular services, which students may obtain at any time throughout the year.

For additional information on services provided by OIT, visit smu.edu/help or call the Help Desk, 214-768-HELP.

Right to Know

Southern Methodist University is pleased to provide information regarding academic programs, enrollment, financial aid, public safety, athletics and services for persons with disabilities. The information is available in a conveniently accessible website at smu.edu/srk. Students also may obtain paper copies of this information by contacting the appropriate office listed below. Disclosure of this information is pursuant to requirements of the Higher Education Act and the Campus Security Act.

1. Academic Programs
   Provost Office, Perkins Administration Building, Room 219
   214-768-3219
   a. Current degree programs and other educational and training programs.
   b. Instructional, laboratory and other physical facilities relating to the academic program.
   c. Faculty and other instructional personnel.
   d. Names of associations, agencies or governmental bodies that accredit, approve or license the institution and its programs and the procedures by which documents describing that activity may be reviewed.

2. Enrollment
   Registrar, Blanton Student Services Building, Room 101
   214-768-3417
   a. Graduation Rates – The completion or graduation rate of the institution's certificate- or degree-seeking, full-time undergraduate students and students who receive athletically related financial aid.
   b. Privacy of Student Education Records – The Family Educational Rights and Privacy Act governs Southern Methodist University's maintenance and disclosure of a student's education records. FERPA provides students the right to inspect and review their education records and to seek amendment of those records that they believe to be inaccurate, misleading or otherwise in violation of their privacy rights. Further, FERPA prevents SMU from disclosing personally identifiable information about a student to outside third parties, except under specific circumstances outlined in SMU's Policy Manual.
   c. Withdrawal – Requirements and procedures for officially withdrawing from the institution.

3. Financial Aid
   Director of Financial Aid, Blanton Student Services Building, Room 212
   214-768-3417
   a. Financial assistance available to students enrolled in the institution.
   b. Cost of attending the institution, including tuition and fees charged to full-time and part-time students, estimates of costs for necessary books and supplies, estimates of typical charges for room and board, estimates of transportation costs for students, and any additional cost of a program in which a student is enrolled or expresses a specific interest.
   c. Terms and conditions under which students receiving Federal Family Education Loan or Federal Perkins Loan assistance may obtain deferral of the repayment of the principal and interest of the loan for:
   i.   Service under the Peace Corps Act;
   ii. Service under the Domestic Volunteer Service Act of 1973; or
   iii. Comparable service as a volunteer for a tax-exempt organization of demonstrated effectiveness in the field of community service.

    d. The requirements for return of Title IV grant or loan assistance.

    e. Enrollment status of students participating in SMU Education Abroad programs, for the purpose of applying for federal financial aid.

4. Student Financials
Director of Student Financials, Blanton Student Services Building, Room 212
214-768-3417

    a. Tuition and fees.

    b. Living on campus.

    c. Optional and course fees.

    d. Financial policies.

    e. Administrative fees and deposits.

    f. Payment options.

    g. Any refund policy with which the institution is required to comply for the return of unearned tuition and fees or other refundable portions of costs paid to the institution.

5. Services for Students With Disabilities
220 Memorial Health Center
214-768-4557

A description of special facilities and services available to students with disabilities.

6. Athletics
Associate Athletic Director for Student-Athlete Services, 316 Loyd Center
214-768-1650

    a. Athletic program participation rates and financial aid support.

    b. Graduation or completion rates of student athletes.

    c. Athletic program operating expenses and revenues.

    d. Coaching staffs.

7. Campus Police
SMU Police Department, Patterson Hall
214-768-1582

Southern Methodist University's Annual Security Report includes statistics for the previous three years concerning reported crimes that occurred on campus, in certain off-campus buildings or property owned or controlled by SMU, and on public property within or immediately adjacent to/accessible from the campus. The report also includes institutional policies concerning campus security, such as policies concerning alcohol and drug use, crime prevention, the reporting of crimes, sexual assault, and other related matters.

The information listed above is available on a conveniently accessible website at smu.edu/srk.

Programs and Descriptions of Courses

ANTHROPOLOGY
Professor David Meltzer, **Department Chair**

Professors: Caroline Brettell, Robert Kemper, David Meltzer, Ben Wallace, Ronald Wetherington. **Associate professors:** Michael Adler, Victoria Lockwood, Carolyn Smith-Morris, David Wilson. **Assistant professors:** R. Alan Covey, Sunday Eiselt, Brigitte Kovacevich, Nia Parson, Sarah Willen. *Emeritus* **professors:** Lewis Binford, Hal Hietala, Anthony Marks, Ladislav Novak, Garth Sampson, Fred Wendorf.

Degree of Master of Arts in Medical Anthropology

The medical anthropology program is a training program in applied anthropology for students seeking involvement in health care agencies, hospitals, clinics and other health delivery organizations.

Degree Requirements

Candidates must complete 36 term hours of academic work. The following are required courses: ANTH 5336, 6316 (or approved equivalent), 6343 (for which 5336 is prerequisite), 5344 and 6353. Anthropology 7333 (Data Analysis) is strongly recommended. The additional hours must be in courses related to applied training in medical anthropology or other courses focusing on health-related anthropological issues.

Degree of Doctor of Philosophy

The Ph.D. program in anthropology offers specializations in archaeology and in cultural anthropology (with concentrations in medical anthropology and globalization and international development).

Degree Requirements

The Ph.D. degree in anthropology carries the following requirements:

1. Students must complete a minimum of 54 hours of approved graduate coursework at SMU, including six hours of dissertation credit. Up to 24 hours may be waived for advanced courses taken elsewhere. In addition, students may test out of advanced courses based on prior graduate-level experiences. The following courses are required for the Ph.D. program in cultural anthropology: ANTH 5334, 5344, 6302 (or other statistics courses), 6312, 7333, 7341, 7342 and 7351. Additional hours will pertain to specializations in medical anthropology or globalization and international development. The following courses are required for the archaeology program: ANTH 5033, 5334, 6301, 6312, 6338 or 6339, 6342 and 7317.
2. The M.A. degree en route to the Ph.D. will be awarded to students who are accepted into the graduate program and who receive a "low pass" or higher on the general M.A. examination in their subfield given at the end of two years' coursework (36 hours). However, only students who achieve a "pass" or higher on this examination may advance into the Ph.D. program.
3. Students must satisfy all curricular requirements as specified by the department faculty. For details, see the department "Redbook" (also available on the Department of Anthropology website at smu.edu/anthro).
4. Students must demonstrate an ability to function proficiently in one or more foreign languages selected from among the following: French, German, Russian, Spanish or substitute languages approved by the department.
5. Students must demonstrate a satisfactory knowledge of analytical methods (quantitative or qualitative, as appropriate).
6. Students must pass a Ph.D. qualifying examination, including an oral defense of a dissertation proposal in their subfield.
7. Students must write and make a successful defense of a dissertation. Degree candidates may concentrate in any subfield except physical anthropology.

The Courses (ANTH)

5334. History of Anthropology. Places the content of historical anthropological developments into related biographical, intellectual, economic and social milieux.

5336. Anthropology and Medicine. Cross-cultural study of the etiology, diagnosis and treatment of disease. Curers and patients. The life cycle and aging. *Prerequisite:* ANTH 2301 or 3301 or permission of the instructor.

5344. Research Methods in Ethnology. Examination of methodologies and techniques appropriate for different types of ethnological research.

5359 (ENGL 5371). **Linguistics: General.** An introduction to modern linguistic science. Topics include phonology, morphology, syntax, semantics, dialects, writing systems, child language, language and the brain and language in education.

5381, 5382. Field Methods in Archaeology.

5681. Field Methods in Archaeology.

5981. Field Methods in Archaeology. Methods of excavation, recording and interpretation used in archaeological research. Offered at Fort Burgwin Research Center, New Mexico. Summer only.

6033. Proseminar on Ethics in Archaeology. Focuses on ethical issues in current archaeology, including collaboration with descendant communities, study of human remains, repatriation of cultural property and research collaboration in international contexts.

6034. Teaching Seminar.

6049. Graduate Full-Time Status. (for students not yet advanced to candidacy)

6300. World Archaeology. An archaeological overview of the human trajectory, beginning with the origins of modern humans and then looking at human interactions with specific environments and sociocultural development over time.

6301. Principles of Archaeology. An advanced seminar course dealing with the fundamentals of modern archaeology.

6302. Statistics in Anthropology. An introductory graduate-level course describing the specific use of quantitative and statistical methods in the subdisciplines of archaeology and cultural anthropology.

6303. Political Economy of Health. Explores topics in health and healing from a political economy perspective. Addresses social and economic factors influencing culture change and health and healing practices within a society. Examines health inequities around the globe.

6304. Migration, Ethnicity and Nationalism. Examines three interrelated topics: migration, ethnicity and nationalism. Focuses on major theoretical positions and on specific ethnographic cases.

6305. Applied Anthropology. The application of anthropological theories and methods to problems in contemporary societies, including global business, community development, health care issues, agricultural/environmental programs, urban planning, tourism projects and educational policy.

6306. Anthropology and Education. The anthropological approach to the study of schools and how an anthropological framework can provide insight into the nature of education and classroom interaction.

6307. Seminar in International Health. An overview of issues in international health, with a focus on contributions of anthropology and anthropologists to international public health issues.

6308. Childhood in Cross-Cultural Perspective. Cross-cultural examination of infancy, childhood and adolescence. Comparative analysis of the process of enculturation in tribal, peasant and modern societies.

6309: Human Rights, Indigenous Peoples and Nation States. An examination of human rights issues among contemporary indigenous peoples, especially the impact of governmental and nongovernmental organizations, large-scale development programs, and global tourism on their cultures and societies.

6310. The Prehistory of the American Southwest. Coverage of current theoretical and research topics in the prehistory of the American Southwest, including early human occupation, sedentariness, community organization and regional abandonments.

6311. Applied Linguistics. The use of insights and techniques from linguistics in achieving practical goals, particularly in the field of education, with special emphasis on bilingual education and the teaching of reading.

6312. Contemporary Theory in Anthropology. Emphasis on various areas of ethnology, archaeology, linguistics and physical anthropology with discussion of readings, student presentations and written papers.

6314. Archaeology of the American Southeast. Twelve thousand years of prehistory from different perspectives, including cultural evolution, social and ideological subsystems, and cultural parallels to Mexico.

6316. Advanced Seminar in Ethnology I. Varying topics.

6317. Advanced Seminar in Ethnology II. Varying topics.

6320. Regional Ethnography. Worldwide exploration of ethnography, exploring similarities and differences across time and space.

6323. Linguistic Analysis. The techniques needed for linguistic fieldwork: phonological, morphological and syntactic analysis. Prepares students to work with unwritten languages and in urban speech communities.

6325. Zooarchaeology. A lecture and laboratory course focused on the methods, techniques and implications of the analysis of animal remains from archaeological sites.

6327. Gendered Lives and Global Change. Analyzes globalization and its impact on gender relations and ideology. Examines the evolving relationship between capitalism and patriarchal social systems, focusing on theories of change in men's and women's lives.

6332. Special Problems in Anthropology. Varying topics.

6333. Laboratory Methods in Archaeology. Detailed examination of Old and New World techniques of artifact classification, with an emphasis upon lithic typology.

6334. Archaeology of the Lower/Middle Pleistocene. Survey of human cultural remains within their contemporary environments, between about 2.6 million years ago and the last Ice Age onset about 70,000 years ago. Covers latest finds from Africa, Europe and Asia.

6335. Upper Pleistocene Prehistory. Examination of cultural development in the Old World from the onset of Wurm to the end of the Pleistocene. Emphasis on adaptive strategies and systematics of such studies.

6336. Post-Pleistocene Adaptations. Provides the background of major cultural change following the end of the last glacial period by examining archaeological and related literature from the environmental sciences.

6337. Origins of Complex Society. Surveys the archaeological evidence for the initial rise of civilization. Places emphasis on the major facts of cultural history, the archaeological problems peculiar to investigation of large-scale societies, and cross-cultural and evolutionary interpretations of the general phenomenon of preindustrial civilization.

6338. Paleolithic Archaeology. Surveys the evidence for the origins and dispersal of stone tool-using hunter gatherers from Africa into Europe, Asia and Australia up to the end of the last Ice Age.

6339. Neolithic Archaeology. Surveys the evidence for the origins and dispersal of early farming technology and social organization from the Near East into mainly Europe, but also Africa and Asia, up to the introduction of metalworking.

6342. Science and the Human Past. Uses of biological and physical sciences in archaeology: site discovery, dating, prehistoric ecology, diet and technology.

6343. Health and Medical Systems. Systems analysis of traditional, popular and scientific medical practice. Examination of medical bureaucracies and the relationship of health care to other social institutions.

6344. Global Population Processes: Anthropological Perspectives. Focuses on an anthropological understanding of population processes in a global context. Addresses some of the major global population processes – nuptiality, fertility, mortality and migration – and examines them within historical and cross-cultural frameworks.

6345. Human Demography. Examination of major features of population change, especially natality, morbidity, migration and mortality.

6346. Environmental Anthropology and Development. Analyzes the processes of globalization from the perspective of environmental anthropology and development.

6347. Seminar in Meso-American Ethnology. Provides an understanding of contemporary Meso-America by examining the literature and field data from anthropological and interdisciplinary viewpoints.

6351, 6352, 6353, 6354, 6355, 6156, 6256. Research in Anthropology.

6357. An Introduction to Statistics in Archaeology. An introductory graduate-level course describing the specific use of quantitative and statistical methods in the subfield of archaeology.

6363. Transforming Local Communities in a Global Age. Examination of local communities in light of theories about local/global relations. Uses case studies to consider how global issues transform local community practices in the United States and elsewhere.

6367. Comparative Peasant Society. An examination of economic and social institutions of contemporary peasant societies with special focus on the changes they are undergoing in the 21st century.

6368. North American Archaeology. Prehistory from the peopling of the New World through initial contacts with European civilization. Regional sequences and ecological changes.

6369. South American Archaeology. Archaeology and related ethnological data of South America from Paleoindians at 13,000 B.P. through the Inca State with a primary focus on the Central Andean sequence.

6371. The Nature of Aging Processes. General considerations and theories of aging in various populations, factors affecting aging, mental and psychomotor abilities in aging, aging of biological systems, nutrition and metabolism of aged populations, body composition changes and aging, physical activity effect on aging, diseases of aging, and rehabilitation of the aged.

6377. The Human Fossil Record. An examination of morphology, classification and evolutionary relationships in the human fossil record. Covers the Pliocene through the emergence of modern Homo sapiens. Comparisons using the departmental fossil collection.

6384. Global Issues and Development: An Overview. Principles of cultural dynamics, innovation, diffusion and social movements shown by nonliterate and peasant societies as they meet Western civilization.

6385. Coastal and Aquatic Archaeology. Seminar on the use of coastlines, oceans, rivers, marshes, lakes and islands throughout the human past.

6390, 6391. Current Issues in Anthropology. Seminar on selected topics.

6398, 6399. Thesis.

7000. Research.

7312. Archaeology of Meso-America. Seminar on archaeological evidence for prehistoric civilization of Mexico.

7313. Archaeological Theory. Logical and rational structure of discourse in archaeology. Evaluation of the quality of arguments, propositions and constructs based on archaeological information.

7314. Prehistory of Sub-Saharan Africa. Seminar on Stone Age and early Iron Age archaeology. Emphasis on critical analysis of typological and regional sequences.

7315. Prehistory of Europe. Survey of Paleolithic archaeology. Includes western Russia. Emphasis on lithic technology and paleoenvironment with critical analysis of interpretations.

7316. Prehistory of North Africa and the Nile Valley. Seminar on the prehistoric range of human occupation up to the earliest literate period.

7317. Archaeological Research Strategies. An examination of the logistics and strategies used in project development and fieldwork through project completion. Emphasis is upon individual student problems.

7318. Late Pleistocene Prehistory of North America. Seminar on the late Pleistocene human occupation of North America from the time of initial colonization, with an emphasis on paleoclimates, paleoenvironments and human adaptations.

7321. Ceramic Analysis for Archaeologists. Examination of procedures for analyzing ceramic artifacts, with special attention to problems of style, typology, dating and provenience.

7331. Prehistory of Southwest Asia. Intensive examination of the theory and data of Near Eastern prehistory from earliest times through the development of the Neolithic.

7333. Data Analysis. Explores various methods of data analysis using the students' data sets or those of a member of the faculty. Combines lecture and discussion with hands-on applications. *Prerequisites:* ANTH 5344, 6302 (or statistics equivalent) or permission of the instructor.

7341. Current Anthropological Literature. Varied readings in numerous ethnological journals. Allows students to report their findings orally and in written form.

7342. Seminar in Social Organization. Intensive investigation of the statics and dynamics of both social organization and social structure in various populations.

7351. Research Strategies in Ethnology. Consideration of theoretical and practical aspects of field work: preparation for research, conduct in the field and data analysis.

8049. Graduate Full-Time Status. (for students who have passed doctoral qualifying examinations)

8100. Dissertation Research, Ph.D. Candidates.

8200. Dissertation Research, Ph.D. Candidates.

8398. Dissertation Research, Ph.D. Candidates.

8399. Dissertation Research, Ph.D. Candidates.

8698. Dissertation Research, Ph.D. Candidates.

8699. Dissertation Research, Ph.D. Candidates.

BIOLOGICAL SCIENCES
Professor William Orr, **Department Chair**

Professors: Christine Buchanan, Richard Jones, Larry Ruben, John Ubelaker, Steven Vik. **Associate professors:** Robert Harrod, Pia Vogel. **Assistant professors:** Johannes Bauer, James Waddle.

Admission Requirements
In addition to meeting the minimum requirements described by the Office of Research and Graduate Studies, an applicant's preparation should include six term hours of calculus or statistics, 16 term hours of chemistry (including eight term hours of organic chemistry) and at least four advanced courses in biology. Applicants are required to take the GRE test. Three letters of recommendation from individuals who know the candidate well and can speak to the candidate's ability for graduate study should be submitted before the candidate is admitted to the program.

Good Standing
A student must maintain a *B* average (3.0 on a 4.0 scale) and receive no more than two grades at or below the grade of *C*. Failure to meet these requirements will result in either probationary status or in dismissal from graduate study. Enrollment in graduate seminar is required of students each term during their first two years in residence. Courses in biochemistry and molecular biology are also required of most beginning students.

Requirements with respect to proficiency in foreign language, computer programming and statistical methodology or in other cognate fields will be determined for each candidate by a departmental advisory committee.

Degree of Master of Arts

This program is designed for students who seek additional training in the biological sciences as a prerequisite to further study in professional schools or for individuals seeking additional training for secondary education.

Candidates must complete 36 hours in biological science with at least 12 hours from 6000-level courses. A three-term-hour research project is required of all students. At least one year must be spent as a full-time student at SMU.

Degree of Master of Science

This program is designed primarily for students who are research oriented and who wish to prepare for advanced work at the doctoral level. To become candidates for this degree, students must prepare, present and successfully defend a written research proposal.

In addition, candidates must complete 30 term hours, including 18 term hours at the 6000 level and BIOL 6398, 6399 (thesis), and conduct a research project, the results of which must be presented orally and defended before an appropriate examining committee of the faculty. At least one year must be spent as a full-time student at SMU.

Degree of Doctor of Philosophy

Admission to graduate study leading to the degree of Doctor of Philosophy does not constitute formal admission to candidacy for the degree. Applicants must meet the requirements set forth in the Degree Requirements section. In addition, to *become a candidate* for the degree, a student must complete successfully all coursework recommended by the departmental advisory committee, must complete successfully a qualifying examination that includes both written and oral sections, and must defend before an appropriate faculty committee a monograph detailing the area of proposed research or a research proposal patterned after a grant proposal.

The candidate for the Ph.D. degree must enroll for the courses necessary to bring the total number of term hours of graduate credit to 60 (as many as 24 term hours may be waived for students with previous graduate work in the life sciences), carry out a research program under supervision of the faculty, prepare a dissertation, successfully defend it before an audience that includes the dissertation committee of the faculty and meet a residence requirement of two years as a full-time student at SMU.

Combined Five-Year B.S./M.S. Degree Program

This degree program is designed for undergraduate students with a strong interest in a research career. It is a five-year plan that results in both B.S. and M.S. degrees. Admission into the program is by petition and occurs during the spring term of the second year. A more complete description of the program is provided in the undergraduate catalog.

The Courses (BIOL)

5110 (CHEM 5110). Biological Chemistry Laboratory. One three-hour laboratory period each week. *Corequisite:* BIOL 5310.

5166 (GEOL 5116). Vertebrate Origins and Evolution Laboratory. A laboratory course to accompany BIOL/GEOL 5366. Exercises include basic anatomy, dissections and examination of fossils. *Corequisite:* BIOL 5366.

5304. Molecular Biology: Control and Expression of Genetic Information. DNA structure and replication, control of transcription and translation, and techniques in molecular genetics and recombinant DNA technology. *Prerequisite:* BIOL 3304.

5310 (CHEM 5310). Biological Chemistry: Macromolecular Structure and Function. Introduction to the structure and function of macromolecules of biological importance. Emphasis on nucleic acid and protein structure and synthesis, enzyme kinetics, and carbohydrate and lipid chemistry. Three lecture hours each week. *Prerequisite:* Organic chemistry.

5311. Biological Chemistry: Metabolism. Introduction to the pathways and regulatory events in the intermediary metabolism of carbohydrates, lipids, amino acids and nucleotides. Three lecture hours per week. *Prerequisite:* Organic chemistry.

5312 (CHEM 5312). Physical Biochemistry. Physical chemistry of macromolecules and biological membranes, with an emphasis on the thermodynamics of solutions. *Prerequisites:* MATH 1338 and CHEM 3372, 5310. CHEM 5381 or 5383 recommended.

5315. Molecular Parasitology. Evaluation of recent advances in parasitic diagnosis and treatment resulting from application of modern techniques in molecular biology. *Prerequisite*: BIOL 3354. BIOL 3350 recommended.

5325. General and Molecular Virology. Emphasis on the molecular aspects of viral replication and pathogenesis, including the roles of viruses in emerging human infectious diseases, cancer and bioterrorism. *Prerequisite:* BIOL 3304.

5364. Endocrine Physiology. The role of hormones in maintaining physiological balance. Describes cellular actions of hormones in relation to subsequent effects in the whole organism. Three lecture hours each week. *Prerequisite:* BIOL 3306 or permission of the instructor.

5366 (GEOL 5366). Vertebrate Origins and Evolution. An introduction to biological and geological processes that have affected the diversity of vertebrate organisms throughout earth history, including origination, biogeography, adaptation and extinction. Strong emphasis on vertebrate anatomy. *Corequisite:* BIOL 5166.

6307. Cell Regulatory Mechanisms. Mechanisms of cell regulation and control. Three lecture/discussion hours each week.

6310. Advanced Cell Biology. Ultrastructure, molecular architecture and physiologic function of cells and their organelles. Three lecture/discussion hours each week.

6312. Proteins: Structure, Function and Design. Protein structure determination, predictions of secondary and tertiary structure, enzyme mechanisms and design, and current topics in protein research.

6317. Techniques in Electron Microscopy. Laboratory exercises in transmission and scanning electron microscopy. *Prerequisite:* Permission of the instructor.

6321. Molecular Biology of Prokaryotes. Molecular biology and biochemistry of prokaryotic cells with emphasis on molecular genetics and regulatory mechanisms. Three lecture/discussion hours each week.

6322. Molecular Biology of Eukaryotes. Structure and function of eukaryotic chromosomes as mediators of gene expression during growth, differentiation and oncogenesis. Three lecture/discussion hours each week.

6324. Techniques in Cell Biology. Theory and application of molecular techniques in cell biology. Experiments with cell culture, antibody probes, protein purification and nucleic acid techniques. Two lecture hours and at least three laboratory hours each week.

6325. Mechanisms of Cellular Aging. Nature of age-associated cellular changes in animals. Three lecture/discussion hours each week. *Prerequisite:* Permission of the instructor.

6350. Advanced Topics in Developmental Genetics. Genetic aspects of cellular and organismal development. Three lecture/discussion hours each week. *Prerequisites:* BIOL 3304 and permission of the instructor.

6375. Scientific Analysis and Writing. Development of skills necessary for the preparation of grant applications and of scientific manuscripts for publication. Three lecture/discussion/reading hours each week.

7312. Perceptorship in Biological Chemistry. Lectures, discussions, readings and laboratory training on metabolic processes in cell systems. Three lecture/discussion hours each week.

Special Courses

6120–6129. Graduate Seminar.

6114, 6214, 6314. Concepts in the Biological Sciences. Discussion of current literature and new concepts in varied areas of the biological sciences.

6170, 6270, 6370, 6371, 6372, 6373. Research in the Biological Sciences.

6398, 6399. Thesis. (for M.S. candidates)

7000. Research in the Biological Sciences.

7315, 7316. Selected Topics in the Biological Sciences.

8049. Full-Time Status. (for students engaged in research)

8398, 8399, 8698, 8699, 8998, 8999. Dissertation. (for Ph.D. candidates)

CHEMISTRY
Professor Elfi Kraka, Department Chair

Professors: Edward Biehl, John Buynak, Dieter Crèmer, Michael Lattman, John Maguire, Mark Schell, Patty Wisian-Neilson. **Associate professors:** Werner Horsthemke, David Son, Brent Sumerlin.

Admission Requirements

In addition to meeting the requirements described by the Office of Research and Graduate Studies, an applicant must hold a Bachelor's degree with a major in chemistry. Applicants are required to take the GRE general test and are strongly encouraged to take the chemistry subject exam. If English is not the applicant's native language, he or she must also take the Test of English as a Foreign Language and score 213 computer-based, 79–80 Internet-based or 550 paper-based, or higher. Three letters of recommendation from individuals who have worked with the applicant must be submitted to the Department of Chemistry.

Good Standing

A student must maintain a *B* average (3.0 on a 4.0 scale) and receive no more than two grades below the grade of *B*-. Failure to meet these requirements will result in either probation and/or dismissal from the graduate program.

Degree of Master of Science

Degree Requirements

Candidates for the M.S. degree in chemistry must complete 30 term hours of graduate work acceptable to the department, complete and defend a thesis before a committee of faculty and a general audience from the department, and satisfy all general requirements of the graduate faculty.

Degree of Doctor of Philosophy

Degree Requirements

1. The student must complete the 10 core courses (CHEM 6111, 6112, 6113, 6114, 6115, 6116, 6117, 6118, 6119 and 6130) in the Department of Chemistry. Additional course hours will be selected from special topics courses based on the student's interests and research program and in consultation with the student's adviser and faculty committee.
2. The student will complete at least two terms of teaching practicum (CHEM 7111, 7112) to enhance communication skills.
3. All students must register for Current Topics in Research (CHEM 6120, 6121) for at least the first four terms in the program.
4. The student will take up to 12 cumulative exams until the required total score is obtained.

5. The student will present a departmental seminar (50 to 60 minutes) (CHEM 7121) on a topic that generally is in bioorganic or materials chemistry and that is not related to his or her research, usually during the second year.
6. At the end of the second year, the student will write a paper and orally describe the progress of his or her research, including a plan for the future research program to be completed for the dissertation (CHEM 7233). This will be presented to and graded by a faculty committee that includes the student's adviser.
7. At the beginning of the student's third year, the student will write an original research proposal unrelated to the student's research program and will successfully defend this proposal before the faculty committee (CHEM 7334).

Upon successful completion of items 1–7, the student will be admitted to candidacy. The candidate must then:

8. Enroll in a sufficient number of courses to complete at least 48 hours of graduate credit.
9. Make a presentation at a professional meeting appropriate to the field of research (CHEM 7122).
10. Complete his or her research program under the supervision of the faculty.
11. Successfully write and orally defend before a faculty committee a dissertation (CHEM 8698, 8699) on his or her individual research program.

The Courses (CHEM)

5185. Laboratory Methods in Physical Chemistry. Laboratory experiments with emphasis on thermodynamics, chemical kinetics and physical biochemistry. One half-hour of lecture and five-hour laboratory period each week for five weeks. *Prerequisite:* CHEM 5381 or 5383.

5188. Advanced Physical Chemistry Laboratory. Laboratory experiments with emphasis on chemical kinetics and molecular spectroscopy. One half-hour of lecture and five-hour laboratory period each week for five weeks. *Prerequisite:* CHEM 5185. *Corequisite:* CHEM 5384 or permission of the instructor.

5192. Inorganic Chemistry Laboratory. Synthesis and characterization of transition metal and main group element compounds and solid-state materials. *Prerequisite* or *Corequisite*: CHEM 5392.

5306. Computational Chemistry. Introduction to the techniques of computer modeling of small to medium-sized organic molecules using advanced graphics workstations. *Prerequisite*: CHEM 3372.

5310. Biological Chemistry: Macromolecular Structure and Function. Introduction to the structure and function of macromolecules of biological importance. Emphasis on nucleic acid and protein structure, enzyme kinetics, and carbohydrate and lipid chemistry. Three lecture hours per week. *Prerequisites*: CHEM 3371 (3373) and 3117 (3119).

5311. Metabolism. Introduction to the pathways and regulatory events in the metabolism of carbohydrates, lipids, amino acids and nucleotides. Three lecture hours per week. *Prerequisites:* CHEM 3371, 3372.

5312. Physical Biochemistry. Physical chemistry of macromolecules and biological membranes, with an emphasis on the thermodynamics of solutions. *Prerequisites:* MATH 1338 and CHEM 3372, 5310. (CHEM 5381 or 5383 recommended)

5333. Introduction to Polymer Chemistry. Provides an introduction to the synthesis, physical properties and solution properties of high molecular weight molecules. Plastics, manufacturing and fabrication of polymers.

5335. Advanced Laboratory Methods and Techniques. Advanced techniques and methods in the synthesis of chemical compounds.

5383. Physical Chemistry I. Gas laws, elementary kinetic theory and the four laws of thermo-

dynamics, including applications to phase diagrams and biological processes. *Prerequisites:* PHYS 1106, 1304 (or 1408) and MATH 2338. *Prerequisite* or *Corequisite:* CHEM 3351.

5384. Physical Chemistry II. Elements of quantum mechanics and its description of many electron atoms, bonding and spectroscopy, intermolecular forces, structure of solids, chemical kinetics, and transport properties of fluids. *Prerequisite:* CHEM 5383.

5387. Thermodynamics and Statistical Mechanics of Materials and Solid State Reactions. Examines the relationship between partition function and thermodynamic variables. Derives transport properties from random-walk models and kinetic theory. Studies solid-state reactions, transport at interfaces, phase transformations and nucleation using techniques from both microscopic and macroscopic theories.

5390. Environmental Chemistry. An examination of the chemistry of earth's environment, with emphasis on problems caused by human activity. Includes aquatic and soil chemistry, nuclear chemistry, combustion, alternative energy technologies, atmospheric chemistry, and global warming. *Prerequisites:* MATH 1338, PHYS 1303 or 1407, and CHEM 1304. *Recommended:* PHYS 1304 or 1408, CHEM 5381 or 5383, or GEOL 6338.

5392. Advanced Inorganic Chemistry. Survey of the bonding, structure and reactivity of inorganic compounds. Coordination, organometallic and main group element chemistry. Three hours of lecture each week. *Prerequisite:* CHEM 5384.

5393. Advanced Organic Chemistry. Three hours of lecture per week. *Prerequisite:* CHEM 3372.

5395. Advanced Analytical Chemistry. Three hours of lecture each week. *Prerequisite:* CHEM 5486.

5396. Advanced Physical Chemistry. Three hours of lecture each week. *Prerequisite:* CHEM 5384.

5397. Biotransformations and Biocatalysis. Covers the history, application and current trends of biotransformations and biocatalysis with emphasis on how biocatalysts are developed and used in pharmaceutical research.

5398. Medicinal Chemistry. Emphasizes the design, mode of action and metabolism of drugs, including antibiotics, antifungals, antivirals, anticancer agents, CNS agents and analgesics/anti-inflammatory agents. *Prerequisites*: CHEM 3371, 3372.

5486. Instrumental Analysis. The theory, operation and application of instrumentation used in the modern chemical laboratory. Two hours of lecture and two three-hour laboratory periods each week.

6000. Research. For students who hold fellowships, but are not enrolled in any credit-hour courses. No tuition.

6049. M.S. Graduate Full-Time Status.

6110. Chemical Communications: Literature, Writing and Presentations. Fundamentals of literature searching, scientific writing, oral and poster presentations, and research notebooks.

6111. Practical Laboratory Methods. Describes the theory behind and practice of laboratory techniques necessary to perform advanced synthetic chemical research.

6112. Advanced Stereochemistry. Advanced study in molecular geometry and relationships in space between atoms and groups in a molecule.

6113. Practical Aspects of Spectroscopy. Basic theory and practical applications of spectroscopy for chemists.

6114. Chemical Kinetics. Kinetics of gas-phase, surface, condensed-phase, polymer, photochemical and enzyme reactions.

6115. Theory of the Chemical Bond. Covers different descriptions of covalent bonding, including the ability to predict bonding structures in molecules and methods to test these predictions.

6116. Introduction to Bioorganic and Medicinal Chemistry. Protein structure, enzymes and receptors as drug targets, enzyme inhibitors, design of agonists, and design of antagonists.

6117. Chemical Periodicity: Reactivity and Structural Trends in Inorganic and Organometallic Compounds. Explores periodic or recurring trends of the chemical elements in terms of their properties and chemical behavior.

6118. Overview of Materials Chemistry. Surveys the synthesis, characterization and applications of ceramics and glasses, polymers, metals, nanomaterials, semiconductors and conductors, and biomaterials.

6119. Synthetic Strategies. Formation of the carbon skeleton, organometallic reagents and coupling reactions, protecting groups and chemical compatibility, and convergent synthesis.

6120, 6121. Current Topics in Research. Review of current research as presented by visiting lecturers.

6130. Mechanisms in Organic, Organometallic and Bioorganic Chemistry. Fundamental mechanistic concepts in bioorganic, materials, medicinal, organic and organometallic chemistry. Emphasizes mechanistic similarities of seemingly different types of reactions.

6306. Computational Chemistry. An introduction to the techniques of computer modeling of small to medium-sized organic molecules using advanced graphics workstations. *Prerequisite:* CHEM 3372.

6308. Special Topics in Chemistry. Presentation of advanced special topics that are at the forefront of current chemical interest. Content varies from term to term.

6302. The Chemical Bond.

6312. Theory of Organic Chemistry.

6331. Theory of Analytical Chemistry.

6351, 6352. Methods and Techniques of Research.

6397. Biotransformations and Biocatalysis. Covers the history, application and current trends of biotransformations and biocatalysis with emphasis on how biocatalysts are developed and used in pharmaceutical research.

6398, 6399. Thesis.

7101, 7201, 7301. **Advanced Independent Study.** Readings in the chemical literature on current research topics related to the student's area of research.

7108, 7208, 7308. Special Topics. Presentations of contemporary topics in chemistry.

7111, 7112. Teaching Practicum. Discussion and experience in teaching and communication in the laboratory and classroom.

7121. Departmental Presentation. Major presentation to the entire department on a topic developed from the literature.

7122. Meeting Presentation. Oral presentation at a professional meeting.

7151, 7251, 7351. Research.

7233. Research Synopsis and Objectives. A written report of research progress and development of a written research plan for the Ph.D. research program. Must be defended before a faculty committee.

7334. Proposal Methodology. Development of a written research proposal that is defended before a faculty committee.

8049. Ph.D. Graduate Full-Time Status.

8698, 8699. Dissertation.

EARTH SCIENCES

smu.edu/earthsciences
Professor Robert Gregory, **Department Chair**

Professors: David Blackwell, Eugene Herrin, Louis Jacobs, Lee McAlester, James E. Quick, Brian Stump, John Walther, Crayton Yapp. **Associate professors:** Bonnie Jacobs, Neil Tabor. **Research professors:** Steven Bergman, Anthony Fiorillo, Roy Mink, John Wagner,

Alisa Winkler, Dale Winkler, Pierre Zippi. **Research associate professor:** H. Troy Stuckey. **Research assistant professors:** Xinlin Du, Jason McKenna, Mihan House McKenna.

Geology or Geophysics Admission Requirements

The minimum requirements for admission to graduate work in the Earth sciences are those now in effect for admission to the graduate programs of SMU. The candidate is required to submit scores on a recent GRE aptitude test. International students applying from countries where English is not the native language are required to submit scores on the Test of English as a Foreign Language examination.

Degree of Master of Science

Degree Requirements

To qualify for the M.S. degree in geology or geophysics, the student must have: 1) successfully completed a minimum of 30 hours of graduate study acceptable to the departmental faculty, including graduate core courses GEOL 5320, 6107, 6321 and thesis hours GEOL 6398, 6399; 2) passed a general qualifying examination; and 3) written and successfully defended a thesis.

Degree of Master of Science in Applied Geophysics

Degree Requirements

This degree plan is specifically developed for students interested in a career in exploration in the petroleum industry. To qualify for the M.S. degree in applied geophysics, the student must have: 1) successfully completed a minimum of 33 hours of graduate study as specified in the curriculum or acceptable to the departmental faculty, 2) passed a general qualifying examination, and 3) completed and successfully defended a project related to some facet of applied geophysics.

Degree of Doctor of Philosophy

Degree Requirements

To qualify for the Ph.D. degree in geology or geophysics, the student must have: 1) satisfied all curricular requirements as specified by the departmental faculty, including graduate core courses GEOL 5320, 6107, 6321; 2) successfully passed a general qualifying examination; 3) completed a minimum of three years of graduate academic work, at least two of which are in full-time residence on the SMU campus or at a research facility approved by the departmental faculty and the dean of Graduate Studies; and 4) written and made a successful public defense of a dissertation. See the Degree Requirements section of the catalog for general requirements for the Ph.D. degree.

The Courses (GEOL)

5110, 5210, 5310. Independent Study in Geoscience. Independent study of a selected topic in geoscience. Individual study under direction of a faculty member allowed for 5110 or 5210; group projects allowed for 5310. *Prerequisite:* Permission of the instructor.

5199, 5299, 5399. Special Topics in Geological Sciences. Topics of special interest not covered by the curriculum, taught by visiting scientists and those with temporary appointments at SMU. Can be cotaught with faculty of the department. *Prerequisite:* GEOL 3340 or permission of the instructor.

5320. Dynamic Earth I. Physical and chemical structure of the earth and its evolution through geologic time. Dynamic processes in the mantle and crust. Development of the theory of plate tectonics as a unifying mechanism for large-scale geologic processes. Implications of plate tectonics and contemporary applications to geological and geophysical problems. *Prerequisite:* Permission of the instructor.

5366 (BIOL 5366). Vertebrate Origins and Evolution. An introduction to biological and geological processes that have affected the diversity of vertebrate organisms throughout

the earth's history, including origination, biogeography, adaptation and extinction. Strong emphasis on vertebrate anatomy. *Prerequisite:* GEOL 1308 or permission of the instructor. The accompanying laboratory strongly recommended.

5166 (BIOL 5166). Vertebrate Anatomy and Origins Laboratory. A laboratory course to accompany GEOL 5366. Includes exercises in basic anatomy, dissections and examination of fossil skeletons. *Corequisite:* GEOL 5366.

5261. Mineral Chemistry. A study of the major rock-forming minerals with emphasis on solid solution, chemistry in relation to crystal structure, conditions of occurrence and stability relations.

5368. Paleoecology. Interactions between the living world and the earth's changing environments through geologic time. *Prerequisite:* GEOL 3369 or permission of the instructor.

5369. Introduction to Palynology. An overview of palynology concepts and uses. Taphonomic processes and applications in paleoecology, paleoclimatology, archeology, plant taxonomy and plant evolution. One field trip.

5370. Global Change. An introduction to relatively short-term geologic changes in the earth's environments. Tempo and mode in the three principal sources of such changes – extraterrestrial events, variations in the earth's internal dynamo and the evolving ocean-atmosphere-biosphere system. *Prerequisites:* GEOL 3340 and permission of the instructor.

5371. Paleontology of Quaternary Vertebrates. The history of vertebrate life in North America during the last three million years, with special emphasis on mammals. Origins, distribution, distinctions, environmental interpretations and faunal analysis. *Prerequisite:* GEOL 3369 and consent of the instructor.

5372. Principles of Sedimentation. Study of the origin and evolution of sedimentary rocks in terms of interpretation of marine and nonmarine sedimentary record.

5374. Petroleum Geology. Application of geologic principles to the location and recovery of hydrocarbon resources in the crust of the earth. *Prerequisites:* GEOL 3340 and CHEM 1304.

5380. Principles of Stratigraphy. Evolution and application of modern stratigraphic concepts and the development of stratigraphic nomenclature. Emphasis on the integration of physical, biological and chemical parameters in interpretation of the rock record. *Prerequisites:* GEOL 3340 and CHEM 1304 or permission of the instructor.

5481. Igneous and Metamorphic Petrology. The origin, occurrence and classification of igneous and metamorphic rocks. Problems of genesis in light of chemical equilibria and features of geological occurrence. Lecture and laboratory. *Prerequisite:* GEOL 3452 or permission of the instructor.

5382. Igneous and Metamorphic Petrology. The origin, occurrence and classification of igneous and metamorhpic rocks. Problems of genesis in light of chemical equilibria and features of geological occurrence. Lecture, no lab. *Prerequisite:* GEOL 3452 or permission of the instructor.

5384. Hydrogeology. An introduction to the chemical and physical behavior of natural waters and the role of fluids in geologic processes. The application of thermodynamics, kinetics and fluid mechanics to understand such geologic processes as ore formation, sediment diagenesis, isograd formation, acid rain, global warming and groundwater contamination. *Prerequisites:* MATH 1338 and CHEM 1304 or permission of the instructor.

5386. Geochemistry. A survey of geochemical processes within the earth and at its surface, emphasizing mineral-water interactions and application of the principles of chemical equilibrium to solution of geochemical problems. *Prerequisite:* GEOL 3452 or permission of the instructor.

5389. Theory of Digital Data Processing in Geophysics. Linear transform theory, convolution, correlation, linear systems, Shannon sampling theorem, discrete Fourier transform, Fast Fourier transform, Z transform, inverse filtering, recursive filtering, optimum filtering, deconvolution and power spectrum analysis. *Prerequisite:* MATH 2343 and permission of the instructor.

5391. Potential Field Methods in Geophysical Exploration. Introduction to potential theory in geophysics. Emphasis on gravity and magnetic techniques with a brief introduction to

heat flow and electrical methods. Basic concepts and their application to hard and soft rock exploration.

5392. Introduction to Seismology. Basic principles of seismology. *Prerequisites:* MATH 2343 and permission of the instructor.

5394. Geophysical Problem Solving. Approaches to problem solving in geophysics. "Back-of-the-envelope" approximations and dimensional analysis. Analytical solutions and numerical techniques on the computer. Inverse theory and error propagation. Using models in the real world. Term project. *Prerequisites:* MATH 2343, 5353 and knowledge of a programming language.

5398. Geomorphology. Analysis of endogenic and exogenic processes that influence the origin or development of planet surfaces, with an emphasis on the earth's large-scale processes and phenomena. *Prerequisite:* GEOL 3452 or permission of the instructor.

6107. Departmental Seminars. Requires students attend and critically evaluate departmental lectures given by visiting scientists, visiting engineers, faculty and fellow students. Required of all graduate students who have not yet passed their degree qualifying exam.

6110, 6210, 6310. Independent Study in Geoscience. Independent study of a selected topic in geoscience. Individual study under direction of a faculty member allowed for 6110 or 6210; group projects allowed for 6310. *Prerequisite:* Permission of the instructor.

6209, 6309. Special Topics in Geological Sciences.

6301. Sedimentology: Carbonate Environments. Carbonate depositional models from modern arid and humid areas as keys to the interpretation of ancient carbonate rocks. Analysis of fauna, texture, classification, sedimentary structures and primary geochemistry.

6302. Sedimentology: Clastic Environments. Description and classification of terrigenous clastic sediments and sedimentary structures. Principal emphasis on analysis of modern and ancient siliciclastic depositional systems.

6303. Sedimentology: Carbonate Diagenesis. Postdepositional alteration of carbonate strata with particular emphasis on the prediction of porosity. Field, petrographic and geochemical lines of evidence.

6304. Sedimentology: Clastic Diagenesis. Postdepositional alteration of sandstones and shales with emphasis on process-oriented controls on mineral reaction and porosity/permeability modification. Petrographic, petrophysical, stratigraphic and geochemical evidence.

6305. Sedimentary Geochemistry. Processes controlling the composition of natural waters and minerals in sedimentary realms with emphasis on subsurface environments. Uses interpretation of analytical data and theoretical treatments to understand geochemical cycling from weathering to precipitation of new minerals.

6306. Reservoir Facies Architecture. Description of clastic and carbonate reservoirs using sedimentological, petrological, petrophysical and petroleum engineering data to formulate realistic models for primary and enhanced recovery in various depositional systems that contain oil and gas reserves.

6308. Biostratigraphy and Biochronology of Mammals. The succession of mammalian faunas through time with emphasis on stratigraphic, chronological and zoogeographic principles and their application to geology.

6316. Advanced Structural Geology. Structural description, strain and displacement in orogenic belts. The theory, methodology, applications and limitations of modern structural analysis techniques. Incorporates these tools into understanding the evolution of major orogenic belts.

6317. Tectonic Analysis. A practical approach to the study of tectonics of Archean basement terrains, mountain belts and contemporary zones of plate convergence using primary geological and geophysical data.

6321. The Dynamic Earth II. Description of modern methods of measuring geologic time and the establishment of isotopic, biostratigraphic, paleomagnetic and geochemical stratigraphies. Examination of sedimentary, biological and geochemical cycles (such as sea level fluctuations, climatic variations, evolutionary patterns, atmospheric-oceanic compositions and continental

positions) and their influence on the earth's sedimentary record. Requires a selected list of prerequisite readings that is available from the departmental office.

6333. Advanced Igneous Petrology I. Theoretical and experimental aspects of igneous petrology. Thermodynamics and properties of silicate melts, crystallization and nucleation, trace element behavior, and high- and low-pressure phase relations.

6334. Advanced Metamorphic Petrology. Study of metamorphic rocks as mineral assemblages. Mineral equilibria observed by comparison of field and experimental data. *Prerequisite:* GEOL 5481 or equivalent.

6335. Advanced Igneous Petrology II. Geochemistry and classification of igneous rocks, relationships between magnetism and tectonism, volcanology, emplacement of plutonic rocks, and processes of magmatic differentiation.

6338. Thermodynamics of Geological Processes. Introduction to theoretical aspects of thermodynamics as they are applied in the Earth sciences to igneous, metamorphic and sedimentary processes. Emphasis on fundamental relationships in thermodynamics and mineral equilibria in aqueous solutions, solid rocks, silicate melts and isotopic systems.

6341. Basin Analysis. Description of modes of origin of sedimentary basins, their thermal and subsidence history, and their patterns of sediment infill. Broad examination of modern concepts of thermal modeling, stratigraphy, sedimentology and hydrocarbon generation. Offered only upon request.

6363. Environmental Geology Seminar. Timely geoscience-based environmental problems and scientific, environmental, political, economic, legal and social aspects of potential "solutions." Selected readings, seminars, guest speakers and research projects.

6369. Advanced Geochemistry. Low temperature aqueous geochemistry with emphasis on carbonate equilibria. The chemistry of natural waters. Application to sedimentary diagenesis and formation of ore deposits.

6370. Aquatic and Mineral-Water Interface Geochemistry. Chemical equilibria and kinetics in natural water and at the mineral-water interface to help understand the distributions of aqueous species at and near the earth's surface and man's influence on them. *Prerequisite:* GEOL 5338 or 5386 or permission of the instructor.

6371. Isotope Geochemistry and Geochronology. Geochemistry of radiogenic and stable isotopes; evolution of Pb, Sr and Nd isotope systems; application to problems in magma genesis, geothermal studies, tectonophysics and geochronology; and application of isotopes as natural tracers.

6375. Theory of Heat Flow and Diffusion. Heat transfer theory applied to the study of the thermal field of the earth and terrestrial planets. Convection and conduction in geologic systems. Geochemistry of the heat-producing elements uranium, thorium and potassium and their interrelationship with terrestrial heat flow.

6376. Application of Geophysical Techniques of Geothermal Exploration. A detailed study of geophysical techniques with applications to geothermal exploration. *Prerequisite:* GEOL 6375 or permission of the instructor.

6380. Geophysical Inverse Theory. Theoretical development and application of inversion theory to problems in geophysics. *Prerequisites:* MATH 5353 and permission of the instructor.

6381. Igneous and Metamorphic Petrology. The origin, occurrence and classification of igneous and metamorphic rocks. Problems of genesis considered in the light of chemical equilibria and features of geological occurrence. Lecture only.

6385. Electrical Methods in Geophysics. A study of electrical methods used in modern geophysical exploration. *Prerequisites:* PHYS 1304 and permission of the instructor.

6391. Theoretical Geophysics. Introduction to potential theory. The figures, gravitational and magnetic fields of the planets. Interpretation of field gravity, magnetic and electrical data. *Prerequisite:* MATH 5334.

6392. Interior of the Earth. Formation and thermal evolution of the earth, generation of the magnetic field, physical and chemical state of mantle and core, convection in the mantle and

geochemical reservoirs, evolution of the crust, relationship of interior processes to lithospheric tectonics, and comparison to the other terrestrial planets. *Prerequisite:* Permission of the instructor.

6393. Geophysical Continuum Mechanics. Stress, strain and strain-rate tensors. Rheology of geological materials. Formulation and solutions of the equations describing the elastic, plastic, viscous and thermal behavior of the earth. Application to lithospheric flexure, plate tectonics, postglacial rebound, sedimentary basin evolution, convection in the mantle, interaction with the lithosphere and comparative planetary tectonics. *Prerequisites:* Permission of the instructor and MATH 5334 or equivalent.

6394. Mathematical Methods of Geophysics and Theoretical Seismology I. Continuum mechanics including viscoelastic materials, reciprocity, representation theorem, moment tensors, kinematic and dynamic source models, Green's functions and matrix methods, including Haskell-Thompson. *Prerequisite:* GEOL 6394 or permission of the instructor.

6395. Mathematical Methods of Geophysics and Theoretical Seismology II. Synthetic seismograms for layered materials, transform methods in the solution of the wave equation, Cagniard-de Hoop and the generalized ray solution, first motion approximation, WKBJ approximation, reflectivity, and full wave theory. *Prerequisite:* GEOL 6394 or permission of the instructor.

6396. Applied Seismology – Theory and Practice. Theoretical tools necessary for processing and interpreting of seismic reflection surveys. Develops exploration sources and receivers. Processing techniques including sampling theory, demultiplexing, normal move-out corrections, stacking, deconvolution and migration. Practical applications of techniques to observational data. *Prerequisites:* GEOL 5389, 5392.

6398, 6399. Thesis.

7000, 7100, 7300. Research.

7152, 7252, 7352. Seminar in Sedimentology.

7153, 7253, 7353. Seminar in Petrology.

7155, 7255, 7355, 7360. Seminar in Geophysics.

7158, 7258, 7358. Seminar in Sedimentology.

7201, 7301. Research in Sedimentology.

7202, 7302. Research in Sedimentology.

7203, 7303. Research in Stratigraphy.

7204, 7304. Research in Stratigraphy.

7205, 7305. Research in Paleontology.

7206, 7306. Research in Paleontology.

7209, 7309. Research in Mineralogy and Petrology.

7210, 7310. Research in Mineralogy and Petrology.

7213, 7313. Research in Geophysics.

7214, 7314. Research in Geophysics.

7215, 7315. Research in Geochemistry.

7216, 7316. Research in Geochemistry.

7250, 7350. Seminar in Paleontology.

7251, 7351. Seminar in Stratigraphy.

7254, 7354. Seminar in Geochemistry.

7257, 7357, 7359. Seminar in Structural Geology.

7317. Research in Geomorphology.

7370. Seminar in Paleontology.

7380. Research Project in Applied Geophysics. Graduate-level research in applied geophysics, including interaction with ongoing programs in the industrial community.

8100. Research.

8398, 8698, 8998. Dissertation.

8399, 8699, 8999. Dissertation.

ECONOMICS
Professor Tom Fomby, **Department Chair**

Professors: Nathan Balke, Raveendra Batra, Rajat Deb, Tom Fomby, Kathy Hayes, Daniel Millimet, Santanu Roy, Kamal Saggi, Daniel Slottje, Shlomo Weber. **Associate professors:** Thomas Osang, Saltuk Ozerturk. **Assistant professors:** Bo Chen, Kyle Hyndman, Anna Kormilitsina, Isaac Mbiti.

Minimum Requirements for Admission – Ph.D. Degree

- Cumulative grade point average of at least 3.0 (on a 4.0 scale).

- Excellent scores on the aptitude parts (verbal and quantitative) of the GRE test. (To be considered for financial aid in the Ph.D. program, the GRE scores must total at least 1200 on the verbal and quantitative parts combined.)

- A Bachelor's degree in economics. The program is also open to students from other fields such as mathematics, statistics and engineering. However, all applicants must have taken at least 12 hours of economics, including two intermediate theory courses, one in price theory (microeconomics) and one in macroeconomics.

- Mathematical proficiency equivalent to courses in multivariate calculus (i.e., three terms of university-level calculus), probability and statistics (two terms), differential equations and linear algebra.

- Test of English as a Foreign Language. TOEFL scores are required of all international students who do not hold a degree from a U.S. degree-granting institution. Minimum score is 213 computer-based or 79–80 Internet-based.

Minimum Requirements for Admission – M.A. Degree

- Cumulative grade point average of at least 3.0 (on a 4.0 scale).

- Twelve hours of undergraduate economics, including two intermediate theory courses, one in price theory (microeconomics) and one in macroeconomics.

- Introductory course in statistics.

- One term of calculus.

- Satisfactory GRE scores if the undergraduate GPA is lower than 3.0.

Applicants for the M.A. Law and Economics Track must already have the J.D. degree or be students in the Dedman School of Law in addition to the admission requirements for the M.A. degree.

Degree of Master of Arts

M.A. With Thesis

Required Courses. ECO 6371 (Introduction to Quantitative Economics), ECO 6384 (Microeconomic Theory I) and ECO 6394 (Macroeconomic Theory I) must be completed with a grade of *C* or better.

Credit Hours. Every student must earn at least 30 term hours in an approved program of study.

Grade Point Average. Every student must maintain a cumulative *B* (3.0) average in courses taken in the degree program.

Thesis and Master's Papers. A student must submit either a Master's thesis or two approved Master's papers.

Qualifying Examination. Upon completion of the coursework and the acceptance of the thesis or the papers, the student must pass an oral examination given by a faculty committee.

Residence. A residence of at least nine months in the regular sessions is required.

M.A. in Conjunction With Ph.D.

Students pursuing a Ph.D. program are qualified to receive the M.A. degree after having fulfilled the following requirements: a) passing the written qualifying examination in microeconomic theory and macroeconomic theory, and b) completing 30 term hours of courses in their program.

M.A. in Economics – Applied Economics Track

The curriculum for an M.A. in economics – applied economics track – is customized to suit the needs of an economist as a graduate student pursuing a career in a business or financial institution, or government agency, or as a senior manager who must analyze the external economic forces affecting a firm and factor them into corporate decisions. The program emphasizes the application of economic theory with quantitative skills and computer literacy as required by corporations and financial institutions in their economic decision-making processes. A rigorous theoretical economic framework is established for the study of government policy and the growing openness of the U.S. economy to foreign competition and economic events. At the same time, mathematical rigor is not compromised. The necessary concepts are developed from the basics, but at a more deliberate pace than in a Ph.D. program. Since many candidates for this degree plan prefer to pursue a degree while employed, many courses in the degree plan are scheduled for evening hours.

Students take three required core courses in economics that form the building blocks for further study and analysis in economics. Another three required courses provide applied training in econometrics and microeconomic analysis. Six additional courses are needed to complete the degree, two of which must be 6000-level courses.

Required Core Courses

ECO 5350 Introductory Econometrics
ECO 6381 Economic Analysis I (microeconomics)
ECO 6382 Economic Analysis II (macroeconomics)

Required Applied Economics Courses (3 out of 4)

ECO 5375 Business and Economic Forecasting
ECO 5385 Data Mining Techniques for Economists
ECO 6352 Applied Econometric Analysis
ECO 6383 New Approaches to Managerial Economics

Six of the following courses (2 of which must be 6000 level)

ECO 5337 Urban Economics
ECO 5340 Decision-Making Under Uncertainty
ECO 5341 Strategic Behavior
ECO 5353 Law and Economics
ECO 5355 Political Economics
ECO 5357 Economics of Human Resources
ECO 5359 Microeconomic Development
ECO 5360 Macroeconomic Development
ECO 5361 Natural Resource and Energy Economics
ECO 5362 Economic Growth
ECO 5365 Public Finance
ECO 5370 Cost-Benefit Analysis
ECO 5390 Mathematical Finance

ECO 6320 Applied Monetary Theory and Policy
ECO 6330 Exchange Rates and International Capital Markets
ECO 6331 International Trade
ECO 6333 Trade Policy and the World Trading System
ECO 6337 Emerging Markets
ECO 6339 Topics in International Economics

Some courses are offered in sequence, which means they are not offered every term.

Credit Hours. Every student must earn at least 36 term hours in an approved program of study. This plan does not require a Master's thesis or Master's papers. A comprehensive final exam is required.

Grade Point Average. All courses must be completed with a grade of *C* (2.0) or better and a *B* (3.0) average in all the courses taken in the program.

M.A. in Economics – International Economics and Policy Track

This curriculum is designed for students who wish to deepen their understanding of the changing global economic environment. Equal emphasis is placed on theory and practice in international economics. All of the entrance requirements for the M.A. in economics – applied economics track – hold for this degree plan. Students take three core courses in economic and quantitative analysis, and these serve as the building blocks for further study and analysis in economics. The three required international courses provide students with the necessary background in theory and practice of international trade, finance and policy. Students can pursue special interests in international economics through elective courses.

Required Core Courses

ECO 5350 Introductory Econometrics
ECO 6381 Economic Analysis I (microeconomics)
ECO 6382 Economic Analysis II (macroeconomics)

Required International Economics Courses

ECO 6331 International Trade
ECO 6330 Exchange Rates and International Capital Markets
ECO 6333 Trade Policy and the World Trading System

Three of the following economics courses

ECO 5359 Microeconomic Development
ECO 5360 Economic Development
ECO 5375 Business and Economic Forecasting
ECO 5385 Data Mining Techniques for Economists
ECO 6339 Topics in International Economics
ECO 6337 Emerging Markets
ECO 6352 Applied Econometric Analysis

Electives

Nine hours (three courses) of free electives

Credit Hours. Every student must earn at least 36 credit hours in an approved program of study. This plan does not require a Master's thesis or Master's papers. A comprehensive final exam is required.

Grade Point Average. All courses must be completed with a grade of *C* (2.0) or better and a *B* (3.0) average over all the courses taken in the program.

M.A. in Economics – Law and Economics Track

The curriculum for an M.A. in economics – law and economics track – is customized to suit the need of lawyers for more knowledge of economics, particularly

applied microeconomic analysis of problems commonly encountered by lawyers and judges, and includes econometric analysis often encountered by the courts from expert witnesses on both sides of a case.

Because many candidates for this degree plan prefer to pursue a degree while actively engaged in the practice of law, most courses in the degree plan are scheduled for evening hours.

Students with J.D. degrees working toward the M.A. will follow this 36-hour nonthesis plan. Students currently in law school will be permitted to substitute nine hours of approved law school credit as electives. All students are required to take at least six hours at the 6000 level.

Required Courses

ECO 5341 Strategic Behavior

ECO 5350 Introductory Econometrics

ECO 5353 Law and Economics

ECO 6352 Applied Econometric Analysis

ECO 6381 Economic Analysis I

ECO 6383 New Approaches to Managerial Economics

Electives

ECO 5337 Urban Economics

ECO 5340 Decision-Making Under Uncertainty

ECO 5357 Economics of Human Resources

ECO 5359 Microeconomic Development

ECO 5360 Economic Development

ECO 5361 Natural Resource and Energy Economics

ECO 5362 Economic Growth

ECO 5365 Public Policy Toward Business

ECO 5370 Cost-Benefit Analysis

ECO 5375 Economic and Business Forecasting

ECO 5385 Data Mining Techniques for Economists

ECO 5390 Mathematical Finance

ECO 6320 Applied Monetary Theory and Policy

ECO 6330 Exchange Rates and International Capital Markets

ECO 6382 Economic Analysis II

ECO 6390 Regional Economic Analysis

Credit Hours. Every student must earn at least 36 credit hours in an approved program of study. This plan does not require a Master's thesis or Master's papers. A final exam is required.

Grade Point Average. All courses must be completed with a grade of *C* (2.0) or better and an overall *B* (3.0) average for all courses taken in the degree program.

Degree of Doctor of Philosophy

The major requirements for the Ph.D. degree consist of passing certain qualifying examinations and writing an acceptable dissertation. Other requirements include specific courses, credit hours, GPA and residence. All of these are briefly described below.

Qualifying Examinations

Every student must pass written qualifying examinations in microeconomic theory and macroeconomic theory. Students will normally take these exams following the end of the second term in the program.

Field Requirements

Two fields are required. Each field involves at least six hours of 7000-level coursework in a specified area and must be completed with at least a grade of *B* in each

course. Preprospectus Workshop (ECO 7304) or Introduction to Applied Econometric Methods (ECO 6375) can be used, with the prior approval of the director of Graduate Studies, to count toward three hours of one six-hour field requirement.

Third-Year Requirement

By the end of their third year, all students must submit a completed **Faculty Adviser Form** to the director of Graduate Studies. By the end of their third year, all students must also complete a **research paper** approved by a faculty member.

Dissertation

The student must pass qualifying examinations before beginning work on the dissertation. The student must prepare a dissertation prospectus, to be presented before a faculty committee upon completion. After the prospectus is approved, and the dissertation is completed, the student must defend the dissertation at a final oral examination.

Course and Credit Hour Requirements and Time Limitations

Every Ph.D. student must earn a minimum of 48 credit hours in an approved program of study with an additional 12 credit hours of dissertation. The 48 hours exclude 8000-level courses such as dissertation research. The courses required of an entering Ph.D. student with no transfer credit are listed in the following sample program. Any course taken as an elective must be at the 5000 level or above and must be approved by the director of Graduate Studies. Up to 24 credit hours of graduate coursework may be transferred from another institution upon approval by the department and the graduate dean. The field requirements must be completed within four years from the date the student enters the graduate program. The dissertation must be completed within eight years from the date the student enters the graduate program.

Good Standing

Students pursuing a Ph.D. degree are required to maintain good standing by being enrolled in at least one credit course per term. ECO 8100, which carries one credit hour, may be used for this purpose at the thesis stage. In some cases, ECO 8000 may be used for this purpose if approved by the chair. To remain in good standing, graduate students must maintain a cumulative GPA of 3.0. If in any term the student falls below this GPA, the student will be placed on probation for one term.

Residence

Every Ph.D. candidate must be in residence at SMU for at least one academic year.

Sample Ph.D. Program

First Year

Fall

ECO 6371 Introduction to Quantitative Economics
ECO 6372 Introduction to Econometrics
ECO 6384 Microeconomic Theory I
ECO 6394 Macroeconomic Theory I

Spring

ECO 6374 Econometrics
ECO 6385 Microeconomics II
ECO 6395 Macroeconomics II

Students must take the qualifying examinations in microeconomic theory and macroeconomic theory at the end of the spring term.

Second Year

Fall

ECO 6375 Introduction to Applied Econometric Methods

Field Course I

Field Course II

Spring

Field Course III

Field Course IV

Topics in Economic Theory (or other elective)

Third-Year Requirement

By the end of their third year, all students must submit a completed **Faculty Adviser Form** to the director of Graduate Studies. By the end of their third year, all students must also complete a **research paper** approved by a faculty member.

The Courses (ECO)

5301. Topics. (Specific topic will be named in title.)

5337. Urban Economics. Analyzes current issues in urban economics from the perspective of economic theory. *Prerequisites:* ECO 3301 or permission of the instructor.

5340. Decision-Making Under Uncertainty. Provides a basis for the modeling of decision-making under conditions of incomplete information. *Prerequisites:* ECO 3302, calculus, and basic statistics or probability.

5341. Strategic Behavior, Game Theory and Applications to Economics. Uses the tools of game theory to examine the elements of strategic behavior of various economic agents, such as firms, consumers or government. *Prerequisites:* ECO 3301 and one term of calculus.

5350. Introductory Econometrics. Discusses the economic analysis of quantitative data and introduces computer analysis. *Prerequisites:* STAT 2301 or 4340 or ITOM 2305; MATH 1309, 1337 or 2337; and ECO 3301 or permission of the instructor. Cannot be taken after ECO 4350.

5353. Law and Economics. Provides a framework for and undertakes the analysis of the economic impact of the law. *Prerequisite:* ECO 3301 or equivalent.

5355. Political Economics. Both methods and applications of political economics models via theoretical and empirical investigation of various topics with emphasis on asymmetric information, income redistribution and fairness, federalism and formation of institutions, and strategic behavior of special interest groups. *Prerequisites:* Undergraduates must have taken ECO 3301 Intermediate Microeconomics or equivalent course.

5357. Economics of Human Resources. The economics of investment in human resources like education and health. *Prerequisites:* ECO 3301 and MATH 1309, 1337 or 2337 with ECO 4351 recommended.

5359. Development: A Microeconomic Perspective. A microeconomic examination of various economic issues faced by developing countries. Includes intrahousehold resource allocation, rural and urban labor markets, migration, and credit and insurance markets. *Prerequisites:* Undergraduates must have taken ECO 3301 Intermediate Microeconomics or equivalent course.

5360. Economic Development: Macroeconomic Perspectives. A macroeconomic examination of the economic issues faced by developing countries. Includes population growth, national savings, capital accumulation, human capital formation, government institutions and international integration. *Prerequisites:* Undergraduates must have taken ECO 3301 Intermediate Microeconomics and ECO 3302 Intermediate Macroeconomics or equivalent courses. (Note: Students who have taken ECO 5360 prior to fall 2007 under its former title "Economic Development" may not retake this course.)

5361. Natural Resources and Energy Economics. Discusses natural resource supply and demand, nonrenewable natural resources, and fundamentals of the energy market. *Prerequisites:* ECO 3301, 3302.

5362. Economic Growth. The facts and theories of economic growth and technological change, as well as the role of governments and markets in promoting or impeding economic growth. *Prerequisites:* ECO 3301, 3302.

5365. Public Finance. Analyzes the financial management of public bodies from local to federal governments. *Prerequisites:* ECO 3301, MATH 1309 or 1337, and STAT 2301 or ITOM 2305. ECO 3302 recommended.

5370. Cost-Benefit Analysis. The economic foundations of modern cost-benefit analysis in government and industry. *Prerequisite:* ECO 3301 or graduate standing.

5375. Economic and Business Forecasting. Presentation of methods used by economists to forecast economic and business trends and ways of evaluating these methods. *Prerequisite:* STAT 2301 or ITOM 2305 or equivalent course.

5380. Computing for Economics. Discusses economic analysis with emphasis on the use of programs and computer packages. Includes software assessment for use in economics, statistics software applications in economics, matrix language packages, computer algebra and linear programming applications. *Prerequisite:* Undergraduates must have permission of the instructor.

5385. Data Mining Techniques for Economists. A study of data mining techniques used by economists in the fields of applied economics, marketing and finance. Includes classification methods, affinity analysis, and data reduction and exploration methods. *Prerequisite:* ECO 5350 or 5375 or equivalent course.

5390. Mathematical Finance: Theory and Applications. A study of selected finance topics (such as capital asset pricing, options and their valuation) that combine theory with actual applications in the financial profession. *Prerequisites:* ECO 5350 Introductory Econometrics or equivalent course, ECO 4378 Financial Economics (or FINA 4326) and ECO 4368 Introduction to Financial Economics (or FINA 4325).

6352. Applied Econometric Analysis. Applications of econometric methods in various branches of economics. *Prerequisite:* ECO 5350 or permission of the instructor.

6383. New Approaches to Managerial Economics. Recent developments in information theory, multiproduct analysis and principal-agent theory. Shows how these developments can be usefully applied in management decision-making. *Prerequisite:* ECO 6381 or permission of the director of Graduate Studies.

Economic Theory

6371. Introduction to Quantitative Economics. Prepares the first-year graduate student for the study of economic theory and econometrics. Covers topics in mathematics and probability that are widely applied in economic theory and econometrics. *Prerequisite:* Graduate standing or permission of the instructor.

6381. Economic Analysis I. Focuses on analysis of basic models of the firm under purely competitive markets and monopolistic competition and simple consumer behavior models. Employs basic mathematical tools such as calculus. Credit for this course cannot be applied toward an M.A. with thesis or a Ph.D.

6382. Economic Analysis II. Presents analysis of basic national income models and various modifications of these models. Credit for this course cannot be applied toward an M.A. with thesis or a Ph.D. *Prerequisite:* ECO 6381 or permission of the instructor.

6384. Microeconomic Theory I. Basic theories of the firm under competitive and monopolistic conditions and basic theory of consumer behavior.

6385. Microeconomic Theory II. Extensions of topics covered in ECO 6384, including monopolistic competition, intertemporal optimization, behavior under uncertainty and welfare economics. *Prerequisite:* ECO 6384.

6386. Microeconomic Theory III. Uses game theory to introduce students to the strategic aspects of some of the economic models developed in Microeconomic Theory I (ECO 6384) and Microeconomic Theory II (ECO 6385). Also, uses game theory to formulate and solve new problems and analyze new economic models. *Prerequisite:* ECO 6385.

6387. Microeconomic Theory IV. Examines a variety of advanced topics that are not covered in the first three microeconomic theory courses (for example, stochastic methods, general equilibrium theory, welfare economics and/or dynamic models). *Prerequisite:* ECO 6386.

6390. Regional Economics. An introduction to the theories of regional economics and to the principal methods of regional analysis including economic base, shift-share, input-output, econometric and time series approaches. *Prerequisites:* ECO 6381, 6382.

6394. Macroeconomic Theory I. Discusses basic theories concerning the determination of national income, employment, consumption, investment and the general price level.

6395. Macroeconomic Theory II. Provides theoretical and empirical underpinnings for macroeconomic models of the economy, with an emphasis on economic policy. *Prerequisite:* ECO 6394.

6396. Macroeconomic Theory III. Covers recent developments in the related areas of business cycle theory, monetary theory, asset pricing and open economy macroeconomics. *Prerequisite:* ECO 6395.

7302. Topics in Economic Theory. Examines selected topics to complement the material in the micro and macro sequence.

Advanced Theory

7305. Mathematical Economics. Applies mathematical tools to various economic problems.

7306. Advanced Economic Theory. Presents a variety of advanced topics in theory not covered in the core theory sequence. For example, uncertainty or applied economic theory.

International Economics

6330. International Economic and Financial Environment. Operation of the foreign exchange markets, balance of payments adjustments, the international equilibrium system and international aspects of economic policymaking. Employs mathematical modeling as appropriate and requires some research using methods of quantitative analysis. A student cannot receive credit for both ECO 6330 and 7332. *Prerequisites:* ECO 6381, 6382.

6331. International Trade. Surveys the major theories of world trade. Analyzes the empirical evidence regarding these theories. Develops a framework for the analysis of trade policy instruments such as tariffs, quotas and voluntary export restraints. *Prerequisite:* ECO 6381.

6333. Trade Policy and the World Trading System. Surveys the major institutions of world trade. Analyzes the political economy of trade policy in major trading countries in conjunction with the rules of world trade, as defined by the agreements of the World Trade Organization and the agenda of the World Bank and the International Monetary Fund. *Prerequisites:* ECO 6331, 6330 or permission of the instructor. May be taken concurrently with ECO 6330.

6339. Topics in International Economics. Examines selected topics in international economics. Applies concepts and tools developed in the core international trade and finance and policy courses to topics that are of current special interest and typically not covered in detail in the core courses. *Prerequisites:* ECO 6330, 6331. May be taken concurrently with ECO 6333.

7332. International Macroeconomic Theory and Policy. Discusses concepts of balance of payments equilibrium; responses to disequilibrium; national economics policies affecting international payments; and past, present and proposed international financial institutions.

7333. Theory of International Trade and Factor Movements. Determinants of regional specialization, gains from trade, and theoretical analysis of factor movements and of policies affecting the interspatial movement of goods and persons.

International and Development Economics

6337. Emerging Markets. Applies economic analysis to the particular problems facing newly industrialized countries and countries in transition from centrally planned to market economies. Evaluates the role of the government as well as political and legal institutions for the economic success or failure of emerging markets. *Prerequisites:* ECO 6330, 6331 or permission of the instructor. May be taken concurrently with ECO 6333.

7334. Development Economics. Applies economic theory to developing economies, including population and household economies, agriculture, industry, international trade and factor movements, and investment project evaluation. To complete this field, the student also must take ECO 7332, 7333.

Human Resources

7321. Theory of Labor Economics. Covers theories and empirical testing of hypotheses concerning the behavior of labor markets.

7322. The Development of Human Capital. Discusses theories concerned with the investment in human capital and its impact on economic growth.

Econometrics

6372. Introduction to Econometrics. Provides economists with the essential skills required to advance through the various areas of specialization in econometrics. *Prerequisite:* ECO 6371 or equivalent.

6374. Econometrics. Examines econometric theory and methods with emphasis on the multiple regression model and its extensions. *Prerequisite:* ECO 6372.

6375. Introduction to Applied Econometric Methods. An overview of econometric methods used in empirical economic research with emphasis on econometric methods used in macroeconomics and microeconomics. *Prerequisite:* ECO 6374.

7075, 7275. Econometrics Workshop. Examines new developments in applied and theoretical econometrics, time series analysis, and related mathematical and statistical topics. Allows faculty and students to present and discuss their latest research findings in econometrics in some sessions. *Prerequisite:* ECO 6374 or higher.

7377. Econometric Theory and Methods. Advanced econometric theory and methods, including asymptotic theory and other selected topics.

7378. Applied Econometrics Methods. Applies econometric methods to empirical areas of economics.

Monetary Economics

6320. Applied Monetary Theory and Policy. Covers operation of the banking sector, demand for money and control of its supply, and economic policymaking by the Federal Reserve and its importance for business decision-making at senior levels. A student may not receive credit for both ECO 6320 and ECO 7361 or 7362. *Prerequisites:* ECO 6381, 6382.

7361. Monetary Economics. Analyzes various theories on the role of money in economic systems and the impact of the money market on economic aggregates and the price level.

7362. Monetary Theory and Policy. Discusses monetary institutions and the impact of monetary policies on the different segments of the economy.

Industrial Organization

7341. Market Structure, Conduct and Performance. Studies the relationships between various market structures and their impacts on economic performance.

7342. Imperfect Markets: Theory and Policy. The study of models of imperfect markets, antitrust laws and other trade regulations, and their effects on economic performance.

Public Finance

7351. Public Finance Theory and Policy. Covers theory and policy of taxation and public expenditures.

7352. Public Finance at Local Levels. Discusses fiscal problems of states and metropolitan areas.

Independent Studies and Workshops

6101. Internship for Master's Students. With approval from a faculty sponsor and the director of graduate studies, allows eligible students to analyze economic problems appropriate to the interning firm or organization. Requires, in addition, at the end of the term, for the student

to write a short report about his or her experience under the supervision of the faculty sponsor and the director of Graduate Studies. Can be taken only twice. *Prerequisite:* 3.0 GPA in economics classes.

6398. Research and Thesis Seminar. M.A. candidates.

7101, 7201, 7301. Readings in Economics.

7004, 7304. Preprospectus Workshop. Analyzes research strategies of seminar speakers, faculty members and students. Requires each student to present a paper directly related to his or her own prospectus.

8000, 8100, 8398, 8698, 8998. Dissertation Research. Ph.D. candidates.

8101. Internship for Ph.D. Students. Allows, with approval from a faculty sponsor and the director of Graduate Studies, eligible students to analyze economic problems appropriate to the interning firm or organization. Requires, in addition, at the end of the term, for the student to write a short report about his or her experience under the supervision of the faculty sponsor and the director of Graduate Studies. Can be taken only twice. *Prerequisite:* 3.0 GPA in economics classes. The student should be a third- or fourth-year Ph.D. student who has earned 48 credit hours in the program.

8399, 8699, 8999. Dissertation Research. Ph.D. candidates.

ENGLISH

Associate Professor Nina Schwartz**, Department Chair**

Professors: Timothy Crusius, Dennis Foster, Ezra Greenspan, Ross Murfin, Jack Myers, Jasper Neel, C.W. Smith, Willard Spiegelman, Steven Weisenburger. **Associate professors:** Richard Bozorth, Darryl Dickson-Carr (*Director of Graduate Studies*), David Haynes (*Director of Creative Writing*), Michael Holahan, Beth Newman (*Director of Women's and Gender Studies*), Timothy Rosendale (*Director of Undergraduate Studies*), Rajani Sudan, Bonnie Wheeler (*Director of Medieval Studies*). **Assistant professors:** Angela Ards, Irina Dumitrescu, Michael Householder, Dan Moss, Martha Satz, Lisa Siraganian.

Admission Requirements

Applicants must have either an undergraduate major in English or a related field or intensive study in the liberal arts with a solid background in literature in English, normally with a grade point average of at least 3.3 for M.A. applicants and 3.5 for applicants to the Ph.D. program. They must also submit scores for the GRE general test. In addition, a statement of purpose for graduate study and three letters of recommendation are required, along with a writing sample in which an argument on a literary topic is sustained for about 10 pages for M.A. applicants and 15 pages for Ph.D. applicants.

Proficiency in one foreign language is strongly recommended prior to matriculation in either program.

Degree of Master of Arts

Degree Requirements

The Master's degree in English is for students pursuing the M.A. as a terminal degree.

Students admitted to the M.A. program are required to take English 6310 (Advanced Literary Studies) and 27 additional hours, at least 12 of which must be at the 6000 level or above. For students who elect to write a thesis, six of these hours must be English 6398, 6399 (thesis). With departmental approval, six graduate hours in a related field may be substituted for courses in the English department.

The department no longer admits students to the creative writing specialization.

Before graduation, each candidate must pass an oral examination on a list of about 40 works related to a critical or thematic focus determined by the candidate in consultation with a faculty adviser.

Degree of Doctor of Philosophy

Degree Requirements

The Ph.D. in English requires 60 hours of courses, including classes, directed readings and dissertation hours. Core courses required of all students are English 6310 (Advanced Literary Studies), English 6311 (Survey of Literary Criticism) and English 6312 (Teaching Practicum). Students will also be required to complete workshops in teaching before the fall of their second year, in preparation for teaching undergraduate courses during that year and subsequent years of graduate study. In addition, students must take a minimum of six 7000-level seminars and will be expected to include in their program of study courses covering a wide range of fields. With permission, students may develop interdisciplinary approaches by taking up to two courses outside the English department.

Proficiency in one foreign language relevant to the student's course of study is required and should be demonstrated prior to the term in which written exams are scheduled. For certain dissertation topics, a second language may be required. Further requirements include written exams in the fall of the fourth year of study, a dissertation prospectus and an oral defense of the prospectus during the spring term of the fourth year. The M.A. degree will be awarded after completion of these requirements. [Note: For students entering with the M.A., 12 hours (one year of coursework) may with permission be waived and the schedule above adjusted accordingly.]

Students who remain in good standing – with a GPA of at least 3.0, demonstrated ability to do work of appropriate quality in seminars, continuous progress in the program and the recommendation of an advisory committee – will receive fellowship support for six years. They will teach two courses a year for four years beginning in the second year of study, with either their fifth or sixth year serving as a dissertation fellowship year with no course requirements or teaching responsibilities. Exceptional students may be offered a one-year visiting assistant professorship in the English department after fulfilling all requirements for the Ph.D.

Students who leave the Ph.D. program after completing 30 hours and who have demonstrated proficiency in a foreign language will be allowed to take an exam in order to receive the M.A. degree. Any student who has demonstrated foreign language proficiency and achieves a GPA of 3.0 in 24 hours of coursework during the first year of study but does not receive the positive recommendation of the advisory committee to continue on to Ph.D. candidacy will be allowed to fulfill the requirements for the M.A. by enrolling in English 6398, 6399 and completing a thesis within the following 12 months.

The Courses (ENGL)

6049. Graduate Full-Time Status. A noncredit, independent course for students continuing work on an M.A. thesis.

6301, 6302. Directed Studies. Directed readings in an area of the student's choice, to be approved by the director of Graduate Studies and the instructor.

6310. Advanced Literary Studies. Readings and practice in research methods and materials, bibliography and textual editing, and the history and practices of the profession. Required of all graduate students.

6311. Survey of Literary Criticism. Readings in criticism and theory from Aristotle through contemporary approaches. Required of all doctoral candidates.

6312. Teaching Practicum. Course in pedagogy for English teachers at the university level. *Prerequisites*: Graduate standing and appointment to a graduate fellowship in the English department.

6313. Rhetorical Theory. Selected major figures and movements from 1920 to the present in the context of the history of rhetoric, recent philosophy and literary theory.

Proseminars: ENGL 6320 through 6380. Open to Master's and doctoral students and to advanced undergraduates with the permission of the instructor and the director of Graduate Studies.

6320. Medieval Literature. Studies in medieval literary-cultural history through 1500.

6321, 6322. Readings in Medieval Literature. *Prerequisite*: Approval by the director of Graduate Studies and the instructor.

6330. Early Modern British Literature. Studies in major British writers and literary-cultural history from 1500 to 1775.

6335. Early Modern American Literature. Studies in major American writers and literary-cultural history from Encounter to 1750.

6340. British Literature in the Age of Revolutions. Studies in major British writers and literary-cultural history from 1775 to 1900.

6345. American Literature in the Age of Revolutions. Studies in major American writers and literary-cultural history from 1750 to 1900.

6350. Modern and Contemporary British Literature. Studies in major British writers and literary-cultural history after 1900.

6360. Modern and Contemporary American Literature. Studies in major American writers and literary-cultural history after 1900.

6370. African-American Literature. Studies in African-American literary-cultural history from colonial to contemporary.

6373. Hispanic-American Literature. Studies in Hispanic-American literature and cultural history from colonial to contemporary.

6375. Sex, Gender and Literature. Studies of the constructions of sexuality and gender in literature and culture, informed by historical study and current theoretical work in such fields as feminism, gender studies and queer theory.

6380. History of Print Culture. A literary-historical survey of major developments, issues, formations and institutions in British and/or American print culture.

6398, 6399. Thesis. Research and writing of the M.A. thesis with guidance from the student's thesis director.

7311. Seminar in Literary Theory. Advanced study of a topic in literary theory.

7340. Seminar in British Literature. Advanced study of a topic in British literature.

7350. Seminar in American Literature. Advanced study of a topic in American literature.

7370. Seminar in Minority Literature. Advanced study of a topic in minority literature.

7372. Seminar in Transatlantic Literature. Advanced study of a topic in transatlantic literature.

7374. Problems in Literary History. Advanced study of problems in literary history.

7376. Seminar: Special Topics. Advanced study of a literary topic that crosses traditional national boundaries.

7398, 7399. Directed Readings. Directed readings in preparation for qualifying exams and dissertation, to be approved by the director of Graduate Studies and the instructor.

8049. Graduate Full-Time Status. Graduate full-time status at the Ph.D. level.

8398, 8399. Dissertation. Research and writing of the dissertation.

WILLIAM P. CLEMENTS DEPARTMENT OF HISTORY

smu.edu/history
Professor Kathleen Wellman, Department Chair

Professors: Jeremy Adams, Peter Bakewell, John Chávez, Dennis Cordell, Edward Countryman, James Hopkins, Donald Niewyk, Daniel Orlovsky, Sherry Smith, David Weber, R. Hal Williams. **Associate professors:** Crista DeLuzio, Melissa Dowling, Kenneth Hamilton, Thomas Knock, Benjamin Johnson, Glenn Linden, Alexis McCrossen, John Mears. **Assistant professors:** Sabri Ates, Ling Shiao.

Degree of Master of Arts
Admission Requirements

Candidates must have a minimum of 12 term hours of advanced-level undergraduate work in history and make acceptable scores on the GRE general test. If English is not the applicant's native language, he or she must also take the Test of English as a Foreign Language and score 550 or higher. Students must submit a statement of purpose, an example of their written work and official transcripts. Three letters of recommendation are also required. Prospective students must submit their applications and all supporting documents by February 1. Candidates must apply for specific admission to one of the fields of concentration offered. Students may begin the program only in the fall term.

The History Department normally requires a minimum 3.0 grade point average overall and a 3.0 average in history for admittance to the M.A. program. Provisional admission is possible in exceptional cases.

Candidates must present evidence of competence in a foreign language or take the history department foreign language examination given in September of the first term of graduate study. For specific fields, the department may require study of a necessary language (such as Latin or Greek for classical history) before actual entry. All students will be required to demonstrate reading ability in a foreign language before enrolling for thesis credit. In the case of a classical/medieval concentration, the student will be required to pass a translation exam in both a classical language and a modern language.

Degree Requirements

The Clements Department of History offers the M.A. degree in four fields of concentration:
1. United States history.
2. Ibero-American history.
3. Classical/medieval history.
4. European history from 1750 to the present.

In special circumstances, the graduate committee may authorize the study of some other major field of history.

Each student will be assigned a major adviser at entrance. The major adviser and the director of Graduate Studies will work with each student to plan a specific course of study, which may include up to six credits in fields or departments outside the major field of study.

Students are required to earn 30 term hours of credit at the 5000 or 6000 level. A 6000-level course can include participation in an undergraduate major history course at the 3000 level, together with additional requirements that the instructor assigns. The structure of programs includes:
1. **HIST 6300** Historiography (three credits).
2. Two colloquia or reading courses at the 5000 or 6000 level in the field of concentration (six credits).
3. One course at the 5000 or 6000 level designated as a research course (three credits).
4. Four additional courses at the 5000 or 6000 level (two each term) in the History Department or courses in other departments or fields as approved by the major adviser and director of Graduate Studies (12 credits).

At the completion of these courses and upon satisfaction of the language requirement, students will take an oral examination in a major field based in part on the specific courses the student has completed. The examination committee will consist of three members of the department. A unanimous positive vote of the committee

is necessary for the student to pass the qualifying examination. After passing the examination, all students will write, present and defend a thesis. The thesis will demonstrate ability to define and analyze a historical problem, mastery of the pertinent historiography, and understanding of the methodological issues posed by the problem. It must also make significant use of primary source material. (six credits thesis)

Degree of Doctor of Philosophy in American History
Offered in conjunction with the William P. Clements Center
for Southwest Studies

Admission Requirements

All applicants must have a Bachelor's degree from an accredited college or university (students from abroad must hold the equivalent degree), with a minimum grade point average of 3.0, and have completed at least 12 advanced hours in history. Applicants must submit GRE scores. If English is not the applicant's native language, he or she must also take the Test of English as a Foreign Language and score 550 or higher. Students must submit a statement of purpose, an example of their written work and official transcripts. Three letters of recommendation are also required. In addition, applicants should possess a foundation in Spanish sufficient to enable them to pass an examination in translation from Spanish to English in September of the first year of study. Prospective students must submit their applications and all supporting documents by February 1.

Degree Requirements

Historiography (three credits). In the first term, students will take HIST 6300, a historiography course that introduces them to the professional study of history. Readings vary from year to year, but cover a broad range of methodologies, perspectives and topics. The course also addresses historical writing, research techniques and historical sources.

American History (24 credits). The major field in American history offers broad preparation. During the first two years, students will take a sequence of four courses based upon intensive readings in American history (12 credits) from the era of Indian-European contact to the present, in order to acquire a mastery of the historiography of the field. The colloquia emphasize new problems, interpretations and debates vital to the study of American history. In addition, students take four specialization courses (12 credits) that may vary in both content and method; these take the form of graduate courses, graduate/senior-level reading seminars and/or individual directed readings. According to individual interests and requirements, one or two of these courses may be taken in another department.

The Southwest and Mexico (12 credits). Students also will develop a field in Southwestern/Mexican history by taking a minimum of 12 credits of coursework. A research seminar (three credits) and a colloquium (three credits) on the Southwest or Mexico comprise half of the field. The remaining courses (six credits) should be chosen in consultation with the adviser. Students who have completed a seminar and colloquium on Mexico might take these six hours in Southwestern history (including Mexican-American, Western or Native-American history), whereas students who have completed their seminar and colloquium on the Southwest might take these six hours on Mexico. Students may also wish to enrich their historical understanding of the region by taking courses in other fields such as anthropology, literature or religious studies. Then, too, the program offers unusual opportunities for students to broaden and deepen their knowledge of this dynamic field of inquiry. The resources include the Clements Center for Southwest Studies, with its symposia, research fellows and distinguished visitors; SMU's DeGolyer Library,

a repository for a remarkable collection of books and manuscripts on Mexico and the Southwest; and the Meadows Museum of Art, which houses one of the world's finest collections of early modern Spanish art outside of Spain.

Global and Comparative History (12 credits). The third field, in global and comparative history (12 credits), places the American experience in larger contexts by introducing students to the theoretical and conceptual frameworks that have guided advanced research in recent decades. The field also provides broad inter-disciplinary perspectives on particular topics of global significance. Students begin this field of study by taking a colloquium (three credits) that explores influential methodologies and theoretical perspectives in global and comparative history, including the Annales school, world-system and dependency analysis, cross-cultural approaches, ecological history, postcolonial, and comparative methods. These are followed by three specialized courses (nine credits) that treat individual topics and themes in comparative contexts. Topics and themes include urbanization, migration, industrialization, revolution, slavery and gender roles.

Ph.D. Research Paper Requirement. Students will take two courses during the first two years of study designated as research courses. The goal is to produce significant work based on primary sources and of a quality comparable to an article in a scholarly journal.

Qualifying Examination. An oral examination on the three major fields will be taken in the spring term of the third year of study.

Teaching Practicum (noncredit). A study of methods and content in the teaching of history coupled with classroom teaching experience.

Dissertation (three credits). Upon completion of the dissertation, a formal defense is conducted before an examination committee of four faculty.

Teacher Preparation

Learning to be an effective instructor is a vital part of the Ph.D. program. The centerpiece of teacher preparation, to occur in the fourth year, is a mentoring program tailored to the interests and needs of each student. Students will work closely with professors in the planning and teaching of an individual course. They will also meet with professors in informal or formal seminars to discuss topics related to teaching and participate in the teaching assistant seminar offered by SMU's Commission on Teaching and Learning and the Office of Research and Graduate Studies.

Fellowships

The History Department will award fellowships to all students accepted into the Ph.D. program. Funding is guaranteed for a period of five years for those whose work remains excellent. Fellowships include tuition, fees, health insurance and a $16,500 stipend for the academic year. In addition, the Clements Department of History has resources available for travel to professional conferences and to research archives.

The Courses (HIST)

5330, 5331. Seminar in Mexican-American History. An examination of the growing histo-riography on Mexican Americans. Focuses on the relationship between their ethnic identity and the Southwest. (also listed under Latin American history)

5340, 5341. Seminar in American History. Intensive examination of major topics in American history.

5344. American Cultural History. The histories of cultural institutions, objects, ideas and practices. Explores an array of representative cultural conflicts and obsessions that have marked American history.

5345. Industrialism and Reform in the United States, 1877–1919. An investigation of life in Gilded Age and Progressive-period America including industrialization, urbanization and social conflict.

5350. Twentieth Century America: A Seminar. Intensive examination of major developments in American history.

5364. The City of God: Utopias in Christian Tradition. An examination of St. Augustine's masterpiece, along with several of its models and analogues from the Greco-Roman and Hebrew traditions.

5367. Russia From the Kievan Era to 1881. The development of state and society from the beginnings of history in East Slavic territory through the era of the Great Reforms.

5370. Seminar in French History. An examination of key historians and of the several modes of historiographical writing that shape the vision of pre-modern France.

5371. The French Revolution and Napoleon, 1789–1815. The nature and causes of revolution, the French Revolution and the career of Napoleon Bonaparte.

5372. Europe From Napoleon to Bismarck, 1815–1870. The aftermath of Napoleon's empire with special consideration of the revolutions of 1848.

5373. Europe From Bismarck to World War I, 1870–1918. Studies some of the modern world's most potent ideas – imperialism, social Darwinism, Marxism, racism and positivism – in the context of Europe at the peak of its influence.

5374. Recent European History, 1918–Present. Considers two attempts to revive Europe from the effects of disastrous world wars, as well as the sources of new vigor it has found in the past 30 years.

5375. Europe in the Age of Louis XIV. The Scientific Revolution, the culture of the Baroque and development of the European state system under the impact of the Thirty Years' War and the wars of Louis XIV.

5376. Europe in the Age of the Enlightenment, 1715–1789. A study of society and culture in 18th-century Europe, Enlightenment philosophies, rococo art, the classical age of music, enlightened despotism and the coming of the French Revolution.

5378. Medieval Renaissances. A reading-and-discussion seminar on two bursts of medieval cultural activity: the Carolingian and 12th-century renaissances. Focuses on two case studies (Alcuin and John of Salisbury).

5382. Seminar in Latin American History. Intensive examination of major topics in Latin American history.

5390. Seminar in Russian History. Advanced seminar covering selected topics in late imperial and Soviet history. *Prerequisites:* HIST 3340 or 3341 or permission of the instructor.

5391. Athenian Democracy. The development of democratic government in Athens and the functioning of that government in peace and in war.

5392. Seminar in European History. Intensive examination of major topics in European history. *Prerequisite:* Junior standing or permission of the instructor.

6000. Research.

6034. Teaching Seminar. Noncredit teaching seminar for graduate students.

6049. Graduate Full-Time Status, Master's Level.

6300. Historiography. Required of all candidates. Designed to familiarize graduate students with the tools of historical research, the discipline's methodology and the problems of historical writing.

6301. Colloquium in Early American History. A readings course covering the major problems in American history between 1500 and 1812.

6302. Colloquium in American History, 1812–1877. A readings course covering the major problems in American history from 1814 to 1877.

6303. Colloquium: Late 19th/Early 20th Century America. A readings course covering the major problems in American history between 1877 and 1932.

6304. Colloquium: Modern America, 1929–Present. A readings course that covers major issues in modern American history from the onset of the Great Depression roughly to the present day.

6305. Colloquium: The Hispanic Southwest. A readings seminar that introduces graduate students to ways that scholars have interpreted the Southwest's Hispanic past under Spain and Mexico and the ongoing Hispanic presence in the region after 1848.

6308. Seminar in American History. An examination of major topics in American history.

6315. Global/Comparative History: Methods and Theories. A colloquium exploring various techniques of research and analysis used by contemporary scholars to investigate major historical problems from a global or comparative perspective.

6316. Colloquium: Comparisons of World-Historical Borderlands. A comparative study of borderlands in four distinct regions: China's northern frontier, classical Rome's Germanic and Near Eastern frontiers, early modern Europe's steppe frontier, and the American Southwest/Northern Mexico. *Prerequisite:* Reading knowledge of one foreign language.

6317. The Frontiers of Spanish History, 218 B.C.–A.D. 1492. Multicultural interaction across several kinds of frontier in pre-modern Spanish history, from the Second Punic War to the unifying reign of the Catholic kings.

6318. Comparative History of Women. Comparative study of women's history in antiquity, East Asia, the Islamic world, Europe and/or the United States, with an introductory section on the theory of women's history and one or more thematic sections on topics such as politics, sexuality and work.

6321. Seminar: Global/Comparative History. An examination of major topics in global and comparative history.

6322, 6323. Readings in History. Directed readings on specific problems or themes formulated by the student with faculty guidance.

6324. Readings in History. Directed readings on specific problems or themes formulated by the student with faculty guidance. *Prerequisite:* 12 term hours of graduate work.

6325. Colloquium: History of New Spain and Mexico. A readings seminar designed to address main themes and historiographical issues in the history of Mexico since the 16th century. *Prerequisite:* Reading knowledge of Spanish.

6326. Colloquium: Mexican-American Historiography of the Southwest. An examination of the historiography on Mexican Americans, focusing on the relationship between their ethnic identity and the Southwest.

6327. Research on the Southwest as a Region. Using a variety of historical approaches and methods, an investigation of regionalism as a national and transnational concept describing the Southwest. Requires each student to produce a lengthy paper based on primary research.

6331, 6332. Problems in United States Foreign Relations. Major problems in American foreign relations from the revolutionary era to the present.

6335. Problems in United States Social and Cultural History to 1877. An examination of American cultural development in its social context from the colonial period to 1877.

6336. Problems in United States Social and Cultural History Since 1877. An examination of American cultural development in its social context from 1877 to the present.

6337, 6338. Problems in United States Political History. An examination of major topics in U.S. political history.

6341, 6342. History of European Ideas. Major themes in European intellectual developments from the Renaissance to the present.

6343, 6344. Problems in Modern German History. Selected issues in the history of the German-speaking peoples from the Reformation to World War II.

6345, 6346. Problems in Early Modern European History.

6347, 6348. Problems in Recent Modern European History.

6349, 6350. Problems in Medieval History. Directed readings and analyses of selected medieval documents and secondary bibliography.

6352. Problems in Medieval Spanish History. Directed readings and analyses of selected medieval Spanish documents and secondary bibliography.

6353, 6354. Problems in the History of Spain and Portugal. Social, cultural and political themes characteristic of the Iberian peninsula from Roman times to the present.

6355, 6356. Problems in Latin American History. Selected topics in Latin American history from the age of exploration and discovery to the mid-20th century.

6357. Problems in Mexican History. Major themes in the evolution of Mexican society and the place of Mexico in the history of the Americas.

6363. The American Civil War and Reconstruction. The nature, causes and impact of the American Civil War, with emphasis upon current historiographical issues.

6370, 6371. Colloquium in European History.

6372. The Apotheosis of Caesar and the Fall of the Roman Republic. The fall of the Roman republic and the rise of the empire as a direct consequence of the life and death of Julius Caesar.

6379. Colloquium in Ibero-American History.

6380, 6381. Colloquium in American History.

6383. Tudor-Stuart Britain. Political, social, economic and religious themes in British history from 1485 to 1714.

6385, 6386. Problems in British History.

6389. Theory and Practice in the Teaching of History.

6394. Practicum in Archival Methods and Administration. An individualized course designed to provide students with both theoretical and practical training in one or more archives and museums in the Dallas area.

6395. Practicum in Museum Studies. An individualized course designed to provide theoretical training and practical experience for students who hope to pursue museum-related careers. In tutorial and apprentice situations, introduces students to the history and philosophy of museums and their administrative and curatorial functions.

6396. Practicum in Oral History. Intensive practical training in oral history, emphasizing interviewing preparation and techniques, but with some attention to the technical processing of oral history interviews before these can be made available to researchers (gaining legal consent, transcribing, editing, indexing and final preparation).

6397. Practicum in the Teaching of History. A study of methods and content in the teaching of history. Special emphasis on actual teaching experience at the high school or college level.

6398, 6399. Thesis. Research and writing of the M.A. thesis with guidance from the student's thesis director.

7000. Teacher Preparation. A noncredit course for the teaching component of the doctoral program in which the student will work closely with a professor in the planning and teaching of an individual course.

7398, 7399. Research.

8049. Graduate Full-Time Status, Ph.D. Level.

8398, 8399. Dissertation – Ph.D. Candidates.

MATHEMATICS
Professor Doug Reinelt, **Department Chair**

Professors: Alejandro Aceves, Richard Haberman, Thomas Hagstrom, Peter Moore, Douglas Reinelt, Richard Williams. **Associate professors:** Vladimir Ajaev**,** Thomas Carr, Robert Davis, Mogens Melander, Johannes Tausch. **Assistant professors:** Yeojin Chung, Suengil Kim (visiting), Daniel Reynolds, Brandilyn Stigler, Sheng Xu, Yunkai Zhou.

The Department of Mathematics offers M.S. and Ph.D. degrees in computational and applied mathematics.

Admission Requirements

Minimum requirements for admission to the graduate programs in mathematics are 18 hours in college-level mathematics courses beyond first- and second-year calculus (including differential equations, linear algebra and statistics). Undergraduate courses in numerical methods, partial differential equations, physics and computer science are particularly helpful, as would be familiarity with programming, specifically MATLAB. There is no foreign language requirement.

Both the M.S. and Ph.D. degree programs require GRE aptitude test scores (general exam only). Two letters of recommendation are required.

Financial aid is available in the form of teaching assistantships, which include the waiver of tuition and fees.

Degree of Master of Science

Degree Requirements

A total of 33 term hours of graduate course credit beyond the Bachelor's degree (usually 11 graduate courses) are required for the Master's degree, including at least 18 hours at the 6000 level (at least 12 of these hours to be taken in the Department of Mathematics). Candidates must complete two courses in computational mathematics (MATH 5315, 6316) and two courses in differential equations and their applications (MATH 5334, 6324). Of the remaining courses, a maximum of three approved courses can be taken from outside the department. An oral examination is required for graduation.

Degree of Doctor of Philosophy

Degree Requirements

To qualify for the Ph.D. degree, the student must fulfill the following requirements:

1. Satisfy all curricular requirements as specified by the departmental faculty.
2. Pass comprehensive written and oral examinations.
3. Complete a minimum of three years of graduate academic work, including at least one year in full-time residence on the SMU campus or at a research facility approved by the departmental faculty and the dean of the graduate program.
4. Write and make a successful defense of a dissertation.

Course requirements for the Ph.D. are flexible but must include the equivalent of 51 term hours of graduate course credit beyond the Bachelor's degree (excluding dissertation work) and at least six credit hours of dissertation. The Ph.D. qualifying examination consists of a written examination based on individualized concentration courses in computational and applied mathematics and presentation of a paper (usually based on a reading course with a faculty member).

The Courses (MATH)

5315 (CSE 7365). Introduction to Numerical Analysis. Numerical solution of linear and nonlinear equations, interpolation and approximation of functions, numerical integration, floating-point arithmetic, and the numerical solution of initial value problems in ordinary differential equations. Emphasizes student use of the computer. *Prerequisites:* MATH 3315/CSE 3365, MATH 2343 and a programming course (such as MATLAB, C or FORTRAN).

5316. Introduction to Matrix Computation. The efficient solution of dense and sparse linear systems, least squares and eigenvalue problems. Uses elementary and orthogonal matrix transformations to provide a unified treatment. Programming in MATLAB with a focus on algorithms. *Prerequisites:* MATH 3353 and MATH 3315/CSE 3365.

5331. Functions of a Complex Variable. Complex numbers, analytic functions, mapping by elementary functions, complex integration. Cauchy-Goursat theorem and Cauchy integral formulas. Taylor and Laurent series, residues and evaluation of improper integrals. Applications of conformal mapping and analytic functions. *Prerequisite:* MATH 3337.

5332. Wavelet Transforms. A mathematical introduction to sampling, data compression, multiresolution analysis, Fourier analysis and wavelet theory, including biorthogonal wavelets and spline wavelets. *Prerequisites:* MATH 1338, 2339, 3353 and MATH 3315/CSE 3365.

5334. Introduction to Partial Differential Equations. Elementary partial differential equations of applied mathematics: heat, wave and Laplace's equations. Physical derivations, separation of variables, Fourier series, Sturm-Liouville eigenvalue problems and Bessel functions. *Prerequisite:* MATH 3337.

5353. Linear Algebra. Spectral theory of Hermitian matrices, Jordan normal form, Perron-Frobenius theory and convexity. Includes applications such as image compression, Internet page rank methods, optimization and linear programming. *Prerequisite:* MATH 3353.

6311. Methods of Applied Mathematics – Perturbation Methods. Solving differential equations with a small parameter by asymptotic techniques: weakly nonlinear oscillators, perturbed eigenvalue problems, boundary layers, method of multiple scales and averaging, and WKBJ method. *Prerequisite:* MATH 2343. (MATH 5334 recommended)

6312. Advanced Perturbation Methods. Kuzmak's theory of strongly nonlinear slowly varying oscillators and the methods of multiple scales and matched asymptotic expansions applied to partial differential equations such as those describing fluid dynamics and wave phenomena. *Prerequisites:* MATH 5334, 6311.

6313. Asymptotic Expansions and Integral Transforms. Fourier and Laplace transforms. Asymptotic expansions with applications to integrals. Includes integration by parts, Watson's lemma, Laplace's method, stationary phase, steepest descents and uniform expansions. Applications and examples from physical problems. *Prerequisite:* MATH 5331.

6315. Numerical Solution of Partial Differential Equations. Finite difference methods for elliptic, parabolic and hyperbolic problems in partial differential equations. Gives stability, consistency and convergence results. Attention to computer implementations. *Prerequisites:* MATH 5315/CSE 7365 and MATH 5334.

6316 (CSE 7366). Numerical Linear Algebra. The efficient solution of dense and sparse linear systems, least squares problems and eigenvalue problems. Also, elementary and orthogonal matrix transformations to provide a unified treatment. In addition to algorithm development, emphasizes the theory underlying the methods. *Prerequisites:* MATH 3353 or an equivalent undergraduate course in linear algebra and MATH 5315/CSE 7365 or consent of the instructor.

6319. Finite Element Analysis. Finite element method for elliptic problems, theory, practice and applications, finite element spaces, curved elements and numerical integration, minimization algorithms, and iterative methods. *Prerequisites:* MATH 5315/CSE 5365/CSE 7365 and MATH 6316/CSE 7366.

6320. Iterative Methods. Matrix and vector norms, conditioning, iterative methods for the solution of large linear systems and eigenvalue problems, Krylov subspace methods and pre-conditioning. Other topics to be chosen by the instructor. *Prerequisites:* MATH 6316/CSE 7366 and some programming experience.

6321. Numerical Solution of Ordinary Differential Equations. Numerical methods for initial value problems and boundary value problems for ordinary differential equations. Emphasizes practical solution of problems using MATLAB. *Prerequisites:* MATH 2343 and MATH 5315/CSE 7365.

6324. Introduction to Dynamical Systems. Nonlinear ordinary differential equations: equilibrium, stability, phase-plane methods, limit-cycles and oscillations. Linear systems and diagonalization. Periodic coefficients (Floquet theory) and Poincaré map. Difference equations (maps), period doubling, bifurcations and chaos. *Prerequisites:* MATH 2343, 3353.

6325. Nonlinear Dynamical Systems and Chaos. Nonlinear differential equations. Stability and bifurcation theory of ODEs and maps. Forced oscillators. Subharmonic resonances. Melnikov criterion for chaos. Lorenz system. Center manifolds and normal forms. Silnikov's example. *Prerequisite:* MATH 6324.

6333. Partial Differential Equations. Method of eigenfunction expansion for nonhomogeneous problems. Green's functions for the heat, wave and Laplace equations. Dirac delta functions, Fourier and Laplace transform methods and method of characteristics. *Prerequisite:* MATH 5334.

6336 (ME 5336/ME 7336). Fluid Dynamics. Preliminaries and concepts from vector calculus. The transport theorem, the Navier-Stokes and other governing equations. Dynamical similarity and Reynolds number. Vorticity theorems. Ideal and potential flow. The influence of viscosity and the boundary layer approximation. *Prerequisite:* MATH 3337 or MATH 5334.

6337. Real Analysis. Real and functional analysis, including the Lebesque integral, Fourier series, Fourier integrals, Banach and Hilbert spaces. *Prerequisite:* MATH 4338 or approval of the instructor.

6341. Linear and Nonlinear Wave Phenomena. The mathematical theory of linear and nonlinear waves. Applications from water waves, traffic flow, gas dynamics and various other fields. Includes nonlinear hyperbolic waves (characteristics, breaking waves, shock fitting and Burger's equation) and linear dispersive waves (method of stationary phase, group velocity and wave patterns). *Prerequisite:* MATH 5334.

6342. Solitons and the Inverse Scattering Transform. Nonlinear dispersive waves. The use of the direct and inverse scattering of the Schrödinger eigenvalue problem to obtain solitons and multiply-interacting solitons for the Korteweg-de Vries equation. Also, the Zakharov-Shabat eigenvalue problem for the nonlinear Schrödinger (envelope solitons) and sine-Gordon (kinks) equations. *Prerequisite:* MATH 6341.

6346. Advanced Fluid Dynamics. Waves: group velocity and dispersion. Viscous flow theory: flow past a sphere and lubrication theory. Two-phase flows: dynamics of bubbles, instabilities of thin films and liquid jets. Vortex dynamics: point vortices and Crow instability. Turbulence. *Prerequisites:* MATH 6336/ME 5336/ME 7336.

6347. Vortex Dynamics. Vorticity transport equation. Rectilinear vorticies as a Hamiltonian system. Elliptical vortices-moment model. Vortex rings. Swirling flows. Vortices near boundaries. Pairing. Reconnection. *Prerequisites:* MATH 5331, MATH 5315/CSE 7365 and MATH 6324. (MATH 6336 useful, but not essential)

6348. Turbulence in Fluids. A mathematical introduction to turbulence – the last great problem of classical physics according to Feynman. Kolmogorov's 1941 theory, closures theories, shell models and similarity theories. *Prerequisites:* MATH 6324, MATH 5315/CSE 7365, MATH 5331 and MATH 5332 (or 5334). (MATH 6336 useful, but not necessary)

6350. Mathematical Models in Biology. The mathematical analysis and modeling of biological systems, including biomedicine, epidemiology and ecology. *Prerequisite:* Consent of the instructor.

6360 (EE 8332). Computational Electromagnetics. Numerical methods for electromagnetics, with emphasis on practical applications. Numerical discretizations including the method of moments, finite differences, finite elements, boundary elements and fast multipole methods. *Prerequisites:* EE 7330 or MATH 5334 and proficiency in one computer language (such as FORTRAN) or permission of the instructor.

6370. Parallel Scientific Computing. An introduction to parallel computing in the context of scientific computation. *Prerequisites:* MATH 5315/CSE 7365 and MATH 6316/CSE 7366.

6371. Numerical Bifurcation Theory. A survey of basic nonlinear phenomena, including simple bifurcations, Hopf and Turing bifurcations, and bifurcation of periodic orbits in differential equations. *Prerequisites:* MATH 6337 or approval of the instructor.

6391. Topics in Applied Mathematics. Selected topics in the application of mathematical analysis to such fields as differential, integral and functional equations; mechanics; hydrodynamics; mathematical biology; and economics. *Prerequisite:* Permission of the instructor.

6395. Topics in Computational Mathematics. Selected topics of current interest. For example: numerical bifurcation theory, iterative methods for linear systems, domain decomposition and multigrid methods, numerical multidimensional integration, and numerical methods for multibody problems. *Prerequisite:* Permission of the instructor.

8398. Dissertation.

MEDIEVAL STUDIES

Associate Professor Bonnie Wheeler, **Director**

The M.A. in medieval studies is an interdisciplinary cultural studies degree program based in Dedman College and designed to encourage students to acquire not only strong disciplinary training but also broadly based sensitivity to medieval cultures, contexts and intellectual currents. It draws upon courses in the Western Middle Ages as well as upon Byzantine and Islamic subjects offered by other departments in Dedman College, the Meadows School of the Arts and the Perkins School of Theology. It may be taken as a terminal degree. It is also intended to serve students interested in pursuing a Ph.D. degree in a medieval field, since it will enable such students to gain a broad interdisciplinary acquaintance with the Middle Ages before narrowing their work to a specialized field at the doctoral level.

Admission Requirements

Prospective students will apply through the Office of Research and Graduate Studies and must meet the requirements outlined by that office.

Degree Requirements

Students must earn 30 term hours, with the following requirements:

1. Twenty-four hours to be taken in graduate-level courses and seminars, to be distributed in at least three broad subject areas in medieval studies: 1) history, 2) literature, and 3) music and visual arts. No more than 12 hours and no less than three hours may be applied in each area. Students are encouraged to take courses in philosophy, religious studies and church history when available.
2. Three hours in nonmedieval courses may be taken in the student's major disciplinary area of concentration with approval of the director of Medieval Studies.
3. Competence, demonstrated by examination, in intermediate Latin and one other foreign or medieval language.
4. A thesis carrying six hours of credit linking materials and methods of more than one discipline, to be guided by a committee of the director of Medieval Studies and professors from the two major subject areas covered by the thesis.

Curriculum

Competence in intermediate Latin and one other foreign or medieval language must be demonstrated by examination. The Dallas Medieval Consortium makes it possible for SMU students to enroll in regularly offered advanced Latin courses at the University of Dallas.

A model program for a student interested particularly in historical discourse might include HIST 5364, 5370, 6385 and 5378. In addition, the student might take ENGL 6324, ARHS 6327, 6329 and HX 8321. A student primarily interested in literary discourse might take ENGL 6320, 6321, 6322; HIST 5364, 6352; ARHS 6322, 6324; and HX 8321. A student primarily interested in the visual arts might put together a very coherent program using ARHS 6322, 6324, 6325, 6320 in combination with HIST 6350, 5364; ENGL 6320; and HX 8308.

Regularly offered courses include the following:

In Dedman College

ENGL 6320 Medieval Literature (studies in medieval literary-cultural history through 1500)

ENGL 6321 Readings in Medieval Literature

ENGL 6322 Readings in Medieval Literature

ENGL 6393 Graduate Seminar (when applicable)

FREN 5320 Literary Periods (when applicable)

FREN 5370 Seminar in French Literature (when applicable)

SPAN 5310 Spanish Literature Before 1700

HIST 5364 City of God: Utopias in Christian Tradition

HIST 5378 Medieval Renaissances

HIST 6349 Problems in Medieval History

HIST 6350 Problems in Medieval History

HIST 5370 Seminar in French History: History of France I (Paleolithic–1461)

HIST 6352 Problems in Medieval Spanish History

HIST 6385 Problems in British History (when applicable)

MDVL 5301 Independent Studies

MDVL 5302 Independent Studies

MDVL 5398 Independent Studies

MDVL 5399 Independent Studies

MDVL 6398 Thesis

MDVL 6399 Thesis

In Meadows School of the Arts

ARHS 5320 Seminar in Medieval Art (topic TBA)

ARHS 5322 Seminar in "Convivencia"

ARHS 6320 Medieval Art and Architecture

ARHS 6324 Art and Cultures of Medieval Spain

ARHS 6322 Islamic Art and Architecture

ARHS 6323 Romanesque Art and Architecture

ARHS 6324 Art and Cultures of Medieval Spain

ARHS 6325 The Gothic Cathedral

ARHS 6328 Byzantine Art and Architecture

ARHS 6399 The Jewish-Christian Dialogue in Art and Text

MUHI 6309 Seminar in Medieval and Renaissance Musical Styles

MUHI 6331 History of Theory From the Greeks to the 15th Century

MUHI 6362 Analysis of Pretonal Music

MUHI 6392 Directed Studies in Music History: The Middle Ages

In Perkins School of Theology

HX 7342 Passion-ate Spirituality

HX 8308 Varieties of Medieval Theology

HX 8321 History of Christian Doctrine

HX 8329 Mary in Christian Tradition

HX 8357 Monotheistic Mysticism

HX 8387 Readings in Spanish Mysticism

HX 8359 Art and Devotion in Medieval Spain

PHYSICS

Professor Ryszard Stroynowski, **Department Chair**

Professors: Fred Olness, Ryszard Stroynowski. **Associate professors:** Thomas Coan, Kent Hornbostel, Roberto Vega, Jingbo Ye. **Assistant professors:** Jodi Cooley-Sekula, Robert Kehoe, Pavel Nadolsky, Stephen Sekula. **Visiting assistant professor:** William McElgin. **Senior lecturer:** Randall Scalise. **Lecturer:** Simon Dalley. **Adjunct lecturer:** John Cotton.

Emeritus **professors:** Jeff Chalk, George Crawford, Vigdor Teplitz. **Research professors:** Marc Christensen, Gary Evans, Peggy Gui, Cas Milner.

Degree of Master of Science

M.S. in Physics

Students enrolled in this program must complete either 33 term hours of approved graduate coursework or 30 term hours of courses, including a research thesis. Every student's degree plan must contain at least 18 term hours of graduate-level work in physics, including a prescribed sequence of three courses. Students also must pass an examination on the coursework and, if applicable, defend their thesis.

Degree of Doctor of Philosophy

Ph.D. Program

Candidates for the Ph.D. degree must satisfactorily complete eight specified core courses, four elective graduate courses in physics, a minimum of 12 credit hours of research and a dissertation.

Students also must pass a comprehensive doctoral examination, which is a written examination on both classical and modern physics, typically taken near the end of the second year of the program. Upon passing this examination, the student formally is classified as a Ph.D. candidate.

The Courses (PHYS)

5337. Introduction to Solid-State Physics. Part of the core requirements in the Master's in materials science and engineering degree program. Crystal lattices and the reciprocal lattice. The free-electron model of metals. Crystal binding. Lattice vibrations-phonons. Thermal properties of solids. Energy bands in solids. *Prerequisite:* PHYS 3305.

5380. Concepts of Experimental Particle Physics. Principles of elementary particle physics and the experiments by which physicists learn laws obeyed by these particles, with reading of scientific articles. *Prerequisite:* PHYS 3305 or equivalent. PHYS 5382 recommended.

5382. Introduction to Quantum Mechanics. A study of the development of quantum theory, including blackbody radiation, the Bohr atom and the photoelectric effect. Studies both the wave- and matrix-mechanics approaches, as well as a brief introduction to the Dirac formalism. Discusses solutions to the Schrödinger equation for a variety of one-dimensional problems and for the hydrogen atom. *Prerequisites:* PHYS 3305 and MATH 3353.

5383. Advanced Quantum Mechanics. Applications and approximation methods in quantum mechanics. Applications to laser physics, solid-state physics, molecular physics and scattering. *Prerequisite:* PHYS 5382 or permission of the instructor.

5384. Quantum Physics II. Quantum statistics; band theory of solids; superconductivity, magnetism and critical phenomena; nuclear physics; and physics of elementary particles. *Prerequisite:* PHYS 5383 or permission of the instructor.

5393. Electromagnetic Waves and Optics. Theory and applications of electromagnetic wave radiation, propagation and scattering. Geometrical and physical optics. Guided waves. Lasers, coherent optics, interferometry and holography. *Prerequisite:* PHYS 4392 or equivalent or permission of the instructor.

5395. Introduction to Elementary Particles. Modern theories of elementary particles including relativistic kinematics, Feynman diagrams, quantum electrodynamics, quarks, weak interactions and gauge theories. *Prerequisite:* PHYS 5382.

5398. Applications of Quantum Mechanics. Uses the principles of quantum theory in a study of radiative transition in atoms and molecules, quantum statistics, band theory of solids, semiconductor theory, and laser physics. *Prerequisite:* PHYS 5382 or equivalent.

6321. Classical Mechanics. Topics in classical mechanics including the mechanics of a system of particles, the two-body central-force problem, Lagrange's and Hamilton's formulations, special theory of relativity, Hamilton-Jacobi theory, and continuous systems and fields.

6332. Physical Properties of Materials. Electric, magnetic, transport, optical and elastic properties. Piezoelectricity. Electromagnetic and elastic wave propagation. Methods of materials characterization and nondestructive evaluation.

6335, 6336. Quantum Mechanics. Fundamental principles of quantum theory with applications to one-dimensional problems, the free particle and the hydrogen atom, and the spinning electron. Perturbation theory with applications to atomic spectra, systems of identical particles, scattering theory and Dirac theory of the electron. *Prerequisites:* PHYS 5382 or equivalent and MATH 3333.

6338. Condensed Matter Physics. Plasmons, polaritons and polarons. Optical properties of solids. Superconductivity. Atomic and collective magnetism. Atomic and collective electrical phenomena. *Prerequisite:* PHYS 5337 or permission of the instructor.

6341. Nuclear Physics. General properties of the nucleus, the two-nucleon problem, radio-activity, beta decay, interaction of charged particles and radiation with matter, detection methods, nuclear models, nuclear reactions, and neutron physics. *Prerequisite:* PHYS 6335 or permission of the instructor.

6351. Statistical Mechanics. Derivation of classical and quantum statistical distribution functions, partition functions, the laws of thermodynamics, ensemble theory and applications to gases and solids.

6361. Selected Topics in Physics.

6398, 6399. Thesis.

7170. Current Topics in Physics.

7305. Methods of Theoretical Physics. Mathematical methods, theory of analytic functions, evaluation of integrals, linear vector spaces, special functions, integral equations, tensor analysis, calculus of variations and group theory. *Prerequisites:* Working knowledge of complex variables, Fourier transforms and partial differential equations.

7311, 7312. Electromagnetic Theory. Boundary-value problems in electrostatics, dielectrics, magnetic media, Maxwell's equations, electromagnetic waves, refraction and reflection, wave guides, and cavities. Electromagnetic radiation, diffraction and interference, plasma physics, special relativity, dynamics of charged particles and multipole expansion. *Prerequisite:* PHYS 5393 or permission of the instructor.

7314. Quantum Field Theory I. Classical fields, symmetry transformations and conservation laws, the quantum theory of radiation, relativistic quantum mechanics of spin-1/2 particles, second quantization, and the theory of interaction fields. Covariant perturbation theory, collision phenomena in quantum electrodynamics and renormalization. *Prerequisite:* PHYS 6336.

7315. Quantum Field Theory II. Path integral formulation, renormalization group, symmetry structure, formal aspects and nonabelian gauge theories. *Prerequisite:* PHYS 7314 or permission of the instructor.

7321. Atomic Physics. The central-field model of atomic structure, the Hartree methods, angular momentum and the vector model of the atom; antisymmetry and the determinantal method; theory of multiplets; and magnetic properties of atoms. *Prerequisites:* PHYS 6336 or working knowledge of quantum mechanics and permission of the instructor.

7330. Physics of Quantum Electronics. Interactions of electromagnetic radiation with atomic systems, absorption and dispersion, line-broadening mechanisms, and amplification. Quantum theory of light scattering: Rayleigh, Raman and Brillouin scattering. Theory of lasers. Coherent pulse propagation. Nonlinear optical processes. *Prerequisite:* PHYS 6336 or working knowledge of quantum mechanics and permission of the instructor.

7341. Theoretical Nuclear Physics. Properties of nuclear forces, many-body theory of nuclear models and analysis of scattering experiments. Interaction between nucleons and radiation, pion physics, and weak interactions. *Prerequisites:* PHYS 6336, 6341.

7350. General Relativity. Einstein theory, black holes, gravitational waves and cosmology. *Prerequisite:* PHYS 6321 or permission of the instructor.

7360. Elementary Particles I. Physics of the standard model, quarks and leptons, internal symmetries, and grand unified theories. *Prerequisite:* Permission of the instructor.

7361. Elementary Particles II. Continues 7360 with emphasis on current topics. *Prerequisite:* PHYS 7360 or permission of the instructor.

8100–8900. Research.

8361, 8362, 8363. Special Topics in Physics.

8398, 8399. Dissertation.

PSYCHOLOGY
Professor Ernest Jouriles, **Department Chair**

Professors: Alan Brown, George W. Holden. **Associate professors:** Robert Hampson, Renee McDonald, Thomas Ritz, David Rosenfield, Jasper Smits. **Assistant professors:** Austin Baldwin, Georita Frierson, Alicia Meuret, Amy Pinkham, Lorelei Simpson.

Doctor of Philosophy in Clinical Psychology

The Ph.D. program in clinical psychology is a 70-hour program designed to prepare a student for a professional career in research, teaching and/or the clinical applications of empirically supported psychological methods. The major requirements for the Ph.D. degree consist of departmental research requirements, coursework, practica and a formal clinical internship.

Research Requirements and Qualifications for Candidacy

Students are expected to conduct research throughout their enrollment in the clinical psychology doctoral program. To facilitate their involvement and training in research, the program will include several "research benchmarks" that students must complete prior to graduation. Research benchmarks must be completed in accordance with the Dedman College graduate catalog.

Research Benchmarks

1. **First-Year Research Project.** Students must participate as a co-investigator with their faculty adviser in a research project. The first-year project will culminate in a manuscript submitted for publication or presentation at a professional conference. Faculty advisers will be responsible for determining whether or not their students meet the requirement for the first-year research project.

   Note: The student's first-year research project will be part of a project that the faculty adviser is conducting. This research experience will thus provide students with exposure to a research area and help shape the skills necessary to develop hypotheses, analyze data and communicate the results.

2. **SMU Research Day.** Second-year Ph.D. students and beyond must present a research poster for SMU Research Day. The student does not need to be first author. (Another student can first-author the poster.) For first-year students, this research day presentation requirement is optional.

3. **Thesis.** By the end of their third year in the program (August 31), students will be expected to complete an empirical research project that will comprise their thesis. Students must complete an oral defense of a thesis proposal (prior to initiating thesis research) to a thesis committee consisting of three faculty members (with at least two of these committee members being tenured or tenure-track faculty from SMU's Department of Psychology). The final thesis will be in the form of a manuscript (authored by the student) suitable for submission to a professional journal. Students must complete an oral defense of the completed manuscript to their thesis committee.

   Note: The thesis will culminate in a manuscript submitted for publication or presentation at a professional conference. The publication or presentation of this research will most likely be done in conjunction with the faculty adviser.

The thesis must be different from the first-year project.

4. **Presentation of Research at a Professional Conference or Publication of Research in a Professional Journal.** By the end of their third year (August 31), students will be expected, in conjunction with their faculty adviser, to present their research at a professional conference or have their research published in a professional journal. This needs to be research completed while each student was a participant in the clinical psychology doctoral program. Acceptance at one of these venues constitutes mastery of at least a portion of the fundamental conceptual and methodological knowledge in the student's area of research interest.

5. **Review Article.** To demonstrate in-depth knowledge of their research area and to demonstrate their capability to interpret and synthesize theories and data, students will write a review article in the tradition of a *Psychological Bulletin* article. The final version of this review article will be completed by the end of their third year (August 31), with the first draft completed by May 31. Students are encouraged to consult articles by Bem (1995), *Psychological Bulletin*, 18, 172–177 on "Writing a Review Article for *Psychological Bulletin"* and Maxwell and Cole (1995*), Psychological Bulletin*, 118, 193–198 on "Tips for Writing (and Reading) Methodological Articles."

Students must form a committee to approve the review article. The committee must consist of at least two faculty members (with one being the student's faculty adviser).

Students should submit an outline (no more than 10 pages) to the committee detailing the purpose and content of the review. Students may work closely with their faculty adviser in generating the detailed outline, which should then be presented to the review committee. Following the defense of the outline, the rest of the review article must be completed without faculty editing. Students and their faculty adviser should discuss the nature and conceptualization of the article at length, but, once writing has begun, there is no further faculty editing.

The review article should be submitted to the committee in manuscript form (authored by the student). The student should receive written feedback from the committee members about the review (in a form similar to a review of a manuscript submitted for publication). The faculty adviser will coordinate the review process. If it is deemed appropriate, the review article may serve as the basis for the introduction to the student's dissertation.

Candidacy Requirements

Candidacy requirements consist of completion of the five research benchmarks (first-year research project, research day, thesis, presentation of research at a national conference or publication of research in a professional journal, and review article). Students must also complete the core clinical courses to qualify for advancement to candidacy (Clinical Research Issues and Methods, Seminar in Adult Psychopathology, Theories and Methods of Psychotherapy, Psychological Assessment, and Ethics in Psychology). Advancement to candidacy is necessary for students to initiate dissertation research and to apply for an internship. Students are required to complete their candidacy requirements by the end of their third year (August 31) in the program. An extension of one year may be granted by the dean upon submission of a petition endorsed by the department.

6. **Dissertation.** The dissertation is comprised of an original empirical research project with the potential to contribute to the knowledge base in the area of clinical psychology.

For approval to begin the dissertation, students must propose the project

formally to the dissertation committee. The dissertation committee shall consist of: 1) the faculty adviser, who will serve as chair; 2) at least two other tenured or tenure-track faculty from the Department of Psychology; and 3) at least one external reviewer who is either a faculty member outside of the Department of Psychology, or with the approval of the department chair and the graduate dean, a scholar not associated with SMU. The faculty adviser must be a tenured or tenure-track faculty member.

Successful completion of the dissertation will be determined by an oral defense before the student's dissertation committee.

Note: Students are required to obtain approval from the SMU Institutional Review Board prior to initiating any research.

Required Courses (51 hours)

PSYC 6091–6098 Integrated Practicum Seminar
PSYC 6305 Quantitative Methods I
PSYC 6307 Quantitative Methods II
PSYC 6310 History and Systems in Psychology
PSYC 6311 Seminar in Social Psychology
PSYC 6312 Seminar in Developmental Psychology
PSYC 6314 Seminar in Adult Psychopathology
PSYC 6316 Seminar in Cognitive Psychology
PSYC 6317 Seminar in Physiological Psychology
PSYC 6324 Clinical Research Issues and Methods
PSYC 6351 Theories and Methods of Psychotherapy
PSYC 6353 Integrative Psychological Assessment
PSYC 6355 Methods of Psychotherapy/Assessment (summer lab)
PSYC 6358 Multicultural Diversity
PSYC 6357 Seminar in Interviewing Skills
PSYC 6360 Ethics in Psychology
PSYC 6398 Thesis
PSYC 7091–7098 Clinical Practicum
PSYC 8396 Dissertation
PSYC 8091 Internship I
PSYC 8092 Internship II

Elective Coursework (19 hours)

These courses can be taken from Psychology Department courses at the 6000 level or above. Courses from other departments or schools can be taken with approval of the director of Graduate Studies.

Clinical Practica

Students will participate in practicum training beginning in their second year. Purposes of clinical practica are to:

- Offer students training/supervision/experience in the use of empirically supported methods of intervention and assessment.
- Expose students to nonacademic sites in which psychological research is conducted.
- Offer students training/supervision/experience in working with a variety of clients/patients.

Grade Point Average

To be in good standing in the Ph.D. program, each student is expected to obtain a grade of *B* or better in each course. A course with a grade of *C* must be retaken. Two or more courses with a grade of *C* may result in dismissal.

Periodic Performance Reviews

Each student's performance will be reviewed each year, assessing performance in research, clinical skills and assigned duties.

The Courses (PSYC)

6091–6098. Integrated Practicum Seminar. Required seminar for all Ph.D. students enrolled in clinical practica. Provides an integrated approach to diagnosis, interventions and assessment.

6305. Quantitative Methods I. Introduction to basic statistical procedures used for experimental research, including descriptive statistics, hypothesis testing, analysis of variance and nonparametric tests. Special emphasis placed on understanding the theoretical basis underlying the statistical tests, as well as the use of packaged statistical programs.

6307. Quantitative Methods II. The application of multivariate statistical techniques to the analysis of psychological data. Covers varied techniques, but may include multiple regression, multivariate multiple regression, logistic regression, ANCOVA, MANCOVA and mediation analysis.

6309. Seminar in Health Psychology. Current theories and research in health psychology.

6310. History and Systems in Psychology. Review of major historical and theoretical models and trends in the field of psychology.

6311. Seminar in Social Psychology. Current theories and research on the social influences of behavior.

6312. Seminar in Developmental Psychology. Current theories and research in developmental psychology.

6314. Seminar in Adult Psychopathology. Examines concepts, theory and empirical research regarding the nature, course and classification of adult psychopathology. Examines topics from a variety of perspectives, including issues of culture and diversity.

6316. Seminar in Cognitive Psychology. An in-depth examination of selected topics in the general areas of human learning, memory, thinking and related experiences.

6317. Seminar in Physiological Psychology. An integrative overview of the field of psychophysiology of the somatic and autonomic nervous system for the study of psychological processes in health and disease. Includes hands-on experience with measurement techniques.

6318. Seminar in Sensation and Perception. Physical stimuli, physiological receptors and psychological processes involved in extracting information from the physical world.

6322. Scientific Psychology Issues II. Advanced topics in analytic techniques for psychological data. Varied topics that may include longitudinal data analysis, HLM (MLM), survival analysis and/or structural equation modeling.

6324. Clinical Research Issues and Methods. A basic background in the tactics of research design. Focuses on nonstatistical issues such as external validity, internal validity and how to apply such knowledge.

6325. Psychological Research Methods and Assessment With Hispanic Populations. Methodological issues involved in conducting Hispanic-targeted research and assessment, such as ethnic identification, linguistic issues, sampling, instrument design, data collection, analysis and data interpretation.

6334. Seminar in Developmental Psychopathology. Advanced seminar examining theories and data on psychopathology in childhood and adolescence.

6340. Psychobiology of Emotion. An empirically based foundation in the psychobiological processes involved in human emotion, including anger, fear, anxiety and depression. Provides knowledge that will serve as an important foundation underlying interventions for clinically elevated levels of these emotions.

6351. Theories and Methods of Psychotherapy. Discussion of research concerning the efficacy and effectiveness of psychological treatments for adult psychopathology. Discussion about and training in the major theoretical methods of psychotherapy. Ethics of individual

psychotherapy. Discussion regarding cultural variations in treatment.

6352. Theories and Methods of Group Psychotherapy. Discussion and major theoretical perspectives and training in techniques in group psychotherapy. Ethics of group psychotherapy.

6353. Integrative Psychological Assessment. Application of psychological methods to the study of the individual, rationale of test construction and interpretation, problems in the prediction of human behavior, and theory and practice in psychological assessment techniques to measure personality and behavior. Focuses on the integration of diverse sources of data to better inform psychodiagnostic decision-making.

6354. Assessment Practicum. On-campus supervised experience in administration, scoring, interpretation and reporting of cognitive, achievement and objective personality measures for adults and children.

6355. Methods of Psychotherapy/Assessment. A summer lab course preparing students for interviewing and assessment skills prior to their off-campus practicum. Also covers cultural differences in the delivery of services.

6356. Theories and Methods of Couple Therapy. Introduction to theories of couple relationships; theory and practice of empirically supported couple therapies; and special topics in couple therapy, including ethics and diversity. Includes research in these areas.

6357. Seminar in Interviewing Skills. A course that teaches through didactic and experiential methods techniques and methods of client interviewing, basic supportive counseling skills, the importance of understanding multicultural issues, and effective communication and planning of therapy sessions.

6358. Multicultural Diversity. Focuses on appreciation for cultural, ethnic, religious and sexual-orientation group differences while emphasizing mental health and counseling service delivery.

6360. Ethics in Psychology. Reviews the current ethical code of conduct followed by professional psychologists. Discusses ethical principles in terms of their legal, social and philosophical relevance.

6362, 7361, 7362. Advanced Special Topics.

6371, 6372. Research in Psychology. Supervised individual empirical research on selected problems. Requires that a research proposal must be submitted to and approved by the instructor before admission.

6398. Thesis.

7091–7098. Clinical Practicum Credit.

7171. Research.

7172. Research.

7271. Research.

7272. Research.

7371. Research.

7372. Research.

8396, 8397. Dissertation.

RELIGIOUS STUDIES
Professor Charles Wood, **Director of Graduate Program**

Professors: William Abraham, Karen Baker-Fletcher, Charles Curran, Ruben Habito, Michael Hawn, John Holbert, William Lawrence, Robin Lovin, Bruce Marshall, Alyce McKenzie, Richard Nelson, Marjorie Procter-Smith, Harold Recinos, Joerg Rieger, Abraham Smith, Jeanne Stevenson-Moessner, Sze-kar Wan. **Associate professors:** Christopher Anderson, William Barnard, Ted Campbell, Mark Chancey, Jaime Clark-Soles, Richard Cogley, Johan Elverskog, Serge Frolov, Roy Heller, Susanne Johnson, John Lamoreaux, Hugo Magallanes, Rebekah Miles, Evelyn Parker, Mark Stamm, Theodore Walker. **Assistant professors:** Jessica Boon, Jill DeTemple, Elaine Heath, Valerie Karras, Steven Lindquist, Susanne Scholz.

Goals

The Graduate Program in Religious Studies comprises programs of study leading to the M.A. and Ph.D. degrees. The primary goal of both degree programs is to prepare persons for academic leadership in the field and hence for professional careers as teacher-scholars in colleges, universities and schools of theology. The M.A. degree program also aims to accommodate the qualified nonprofessional student interested in advanced work in religious studies within the context of the liberal arts and sciences.

Areas of Study

Students in the Graduate Program in Religious Studies specialize in one of the following six fields of study:
1. Hebrew Bible/Old Testament.
2. New Testament.
3. The Christian tradition.
4. Systematic theology.
5. Religious ethics (Christian ethics).
6. Religion and culture.

Admission Requirements

The requirements for admission to both the M.A. and the Ph.D. degree programs are the same and are, specifically:
1. The B.A. degree or its equivalent from an accredited institution.
2. A cumulative grade point average of 3.0 or above on a 4.0 scale.
3. A satisfactory score on the GRE general test, ordinarily including a combined score of 1200 or greater on the verbal and quantitative sections.
4. Sufficient previous study in religion or related areas to be able to satisfy the requirements of the degree program.
5. When English is not the applicant's native language, a satisfactory Test of English as a Foreign Language score also is required: paper-based version, 550 or better (preferably 600 or above); computer-based version, 213 or better (preferably 250 or above); or Internet-based version, 79–80 or better (preferably 100 or above).

The deadline for completed applications is January 15.

Degree Requirements

Degree of Master of Arts

1. Satisfactory completion of 30 credit hours of approved coursework, including the four courses of the core seminar in Religious Studies: RELI 6301 The Philosophical Study of Religion; RELI 6302 Approaches to Asian Religion; RELI 6303 History, Theory and Method in Religious Studies; and RELI 6304 Contemporary Approaches to the Study of Religion.
2. Demonstrating, by examination, a reading competence in an approved language, other than English, relevant to the field of study.
3. Satisfactory completion of a Master's thesis.

The student is encouraged to develop an area of concentration in his or her 18 hours of undesignated coursework. A maximum of six credit hours may be taken in independent study courses. Concentrations in areas of scholarship represented primarily in the Department of Religious Studies in Dedman College are especially welcome. Students whose main interests are in areas represented in the typical theological curriculum are advised to consider the Master of Theological Studies degree in Perkins School of Theology as an alternative to the M.A. degree in the Graduate Program in Religious Studies.

Degree of Doctor of Philosophy

1. Satisfactory completion of 48 credit hours of approved coursework, including the four courses of the core seminar in Religious Studies: RELI 6301 The Philosophical Study of Religion; RELI 6302 Approaches to Asian Religion; RELI 6303 History, Theory and Method in Religious Studies; and RELI 6304 Contemporary Approaches to the Study of Religion.
2. Demonstrating, by examination, a reading competence in two approved languages, other than English, relevant to the field of study. (For students in the two fields of biblical studies, four languages are required. Examinations must be passed in both Hebrew and Greek as well as in two additional languages.)
3. Passing four comprehensive field examinations on the subjects designated for examination in the student's field, each consisting of a six-hour written examination based on the bibliography agreed upon with the examiner.
4. Securing the steering committee's approval of a dissertation proposal endorsed by the student's adviser, two other members of the Graduate Program in Religious Studies faculty and one reader from outside the Graduate Program in Religious Studies faculty.
5. Satisfactorily meeting the practice teaching requirement.
6. Satisfactorily completing the doctoral dissertation.
7. Passing an oral examination covering the student's entire course of study as well as the dissertation.

Languages

All students are expected to demonstrate a reading competence in at least one approved language other than English upon matriculation, by passing an examination in that language in the August examination period preceding the first term of study. Ph.D. students will be expected to pass an examination in a second approved language by the beginning of the second year. (For students in the two biblical fields, the examination in the second language is to be taken no later than May of the first year.) The approved languages in which examinations may be taken in both degree programs are French, Spanish, German, Greek, Hebrew and Latin. Another pertinent language may be substituted with the approval of the steering committee. It is strongly recommended that Ph.D. students enter the program with a solid reading knowledge of the two (or more) languages in which they expect to be examined, since there is little time or opportunity for basic language acquisition during graduate study.

The Courses (RELI)

6301. The Philosophical Study of Religion. The work of this seminar will focus on aims, methods and problems in the philosophical study of religion.

6302. Approaches to Asian Religions. This seminar is a historical and theoretical inquiry into Asian religions. These traditions will be investigated through three broadly defined methods or theoretical approaches: textual studies, anthropology and social/intellectual history.

6303. History, Theory and Method in Religious Studies. This course will introduce several of the principal approaches to the study of religion in the post-Enlightenment West, focusing on canonical thinkers from various disciplines, especially anthropology, sociology and psychology.

6304. Contemporary Approaches to the Study of Religion. This seminar provides an orientation to the critical study of religion in its contemporary context, with specific attention to emerging issues and modes of inquiry.

6398, 6399. M.A. Thesis.

8100. Dissertation Research.

Independent and Directed Studies

    7300–7309. Philosophy of Religion.

    7310–7319. Philosophical Theology.

    7320–7334. Religion and Culture.

    7335–7349. History of Christianity.

    7350–7364. Systematic Theology.

    7365–7379. Religious Ethics.

    7380–7389. Old Testament.

    7390–7399. New Testament.

Perkins School of Theology Courses*

    BB 8345. Scripture and Christian Ethics.

    GR 7301. Greek Exegesis.

    HB 7302. Hebrew Exegesis.

    HR 8331. Women in World Religions.

    HR 8341. The Christian-Buddhist Dialogue.

    HR 8357. Monotheistic Mysticism.

    HR 8360. Eastern Spiritualities and Christian Mysticism.

    HX 7312. Early Christian Art.

    HX 7314. The Reformation.

    HX 7316. History of American Christianity.

    HX 7322. Christianity in the Hispanic Tradition.

    HX 7324. Christianity in Latin America.

    HX 7335. Wesley and the 18th Century.

    HX 8308. Varieties of Medieval Theology.

    HX 8321, 8322. History of Christian Doctrine.

    HX 8325. The Ecumenical Movement.

    HX 8331. Augustine's City of God.

    HX 8342. Studies in Luther.

    HX 8354. African-American Christianity in the United States.

    HX 8358. A History of Hispanic Protestantism.

    HX 8360. Studies in Wesley.

    HX 8367. Studies in World Methodism.

    HX 8387. Readings in Spanish Mysticism.

    MT 8345. African-American Liberation Theology.

    MT 8352. Contemporary Moral Issues.

    MT 8383. Process Theology and Social Ethics.

    MT 8385. Martin and Malcolm and Theological Ethics.

    MT 8362. Ethics, Theology and Metaphysics of Morals.

    MT 8375. The Poor in John Wesley's Ethics.

    MT 8377. Studies in Reinhold Niebuhr.

    NT 8336. The Book of Revelation Through History and Cultures.

    NT 8365. Evil, Suffering and Death in the New Testament.

    NT 8379. Issues in Pauline Theology.

    OT 8325. The Message of the Prophets.

    OT 8345. Ancient Texts and Modern Readers: Contemporary Approaches to the Hebrew Bible.

    OT 8351. Major Motifs of Biblical Theology.

    ST 8311. Contemporary Theology.

    ST 8314. The Christian Doctrine of God.

    ST 8318. The Person and Work of Jesus Christ.

    ST 8321. The Christian Doctrine of Providence.

ST 8325. The Authority of the Bible for Theology.
ST 8327. North American Hispanic Theology.
ST 8345. Theologies of Hope and Liberation.
TC 8308. Contemporary Issues in Philosophy of Religion.
TC 8316. Christian Ethics, War and Peace.
TC 8318. Christian Ethics and Social Justice.
TC 8325. Bioethics.
TC 8340. The Christian, the Church and the Public Good.
WX 8322. Christianity in Asia.
WX 8328. Theological Issues in World Christianity.

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*See course descriptions in the Perkins School of Theology catalog.

STATISTICAL SCIENCE
Professor Wayne A. Woodward, **Department Chair**

Professors: Ronald Butler, Richard Gunst, William R. Schucany, S. Lynne Stokes. **Associate professors:** Ian Harris, Monnie McGee, Tony Ng, Sherry Wang. **Assistant professor:** Jing Cao. *Emeritus* **professors:** U. Narayan Bhat, Henry L. Gray, C.H. Kapadia, Campbell B. Read.

The Department of Statistical Science offers M.S. and Ph.D. degrees in statistical science. These programs integrate both theory and practice by providing a strong theoretical foundation through courses in mathematical statistics, probability and stochastic processes and by covering the intricacies of the practice of statistics through courses with an applied orientation, as well as hands-on experience in statistical consulting.

Admission Requirements
Minimum requirements for admission to the graduate program in statistical science are: Applicants must hold a Bachelor's degree in mathematics, statistics, engineering, a natural or social science, or business administration, with mathematics through advanced calculus and linear algebra.

Degree of Master of Science

Degree Requirements
To qualify for the M.S. degree, the student must successfully complete at least 36 hours of coursework acceptable to the departmental faculty, including STAT 6304, 6327, 6328, 6336 and 6337, 6345 and 6366; must pass a written examination (called the basic examination) on the required coursework; and must prepare an acceptable report and oral examination on analysis and interpretation of a data set provided by an examination committee.

Degree of Doctor of Philosophy

Advancement to Candidacy
To qualify for the Ph.D. degree in statistics, the student must: 1) satisfy all curricular requirements as specified by the departmental faculty (at least 36 hours), including the courses listed for the Master of Science as well as STAT 6371 and 7327; 2) pass the basic exam, typically at the end of the first year; 3) pass a written exam (called the comprehensive exam) to assess the student's readiness for research, typically at the end of the second year; 4) complete a minimum of three years of graduate academic work, at least one of which is in full-time residence on the campus of SMU or at a research facility approved by the departmental faculty and the dean of Research and Graduate Studies; and 5) write and make a successful defense of the dissertation. See the Degree Requirements section of the catalog for general requirements for the Ph.D. degree.

A student will advance to candidacy after he or she passes the basic and comprehensive exams, prepares a written prospectus in a research area on which the dissertation will be based and presents it orally, and receives approval of the prospectus from his or her dissertation committee.

The Courses (STAT)

Note: 5000-level courses in statistical science do not carry graduate credit for students in the M.S. program or in the Ph.D. program in statistical science.

5340 (CSE 5370). Probability and Statistics for Scientists and Engineers. Introduction to fundamentals of probability and distribution theory and statistical techniques used by engineers and physical scientists. Examples of tests of significance, operating characteristic curve, tests of hypothesis about one and two parameters, estimation, analysis of variance and the choice of a particular experimental procedure, and sample size. *Prerequisites:* MATH 1337, 1338 and 2339 or equivalent.

5344. Statistical Quality Control. An introduction to statistics and simple probability in terms of problems that arise in manufacturing and their application to control of manufacturing processes. Acceptance sampling in terms of standard sampling plans, including MILSTD 105, MILSTD 414, Dodge-Romig plans and continuous sampling plans. *Prerequisite:* Any one of STAT 4340, 5340, CSE 4340 or 5370.

5371. Experimental Statistics I. Noncalculus review of fundamental statistical procedures, including tests of hypotheses, interval estimation and nonparametric tests. Analysis of variance, one-way and two-way factorial designs, repeated measures, and simple linear regression. *Prerequisite:* Junior standing or permission of the instructor.

5372. Experimental Statistics II. Noncalculus treatment of multiple linear regression and modern multivariate techniques such as multivariate analysis of variance, classification and clustering. *Prerequisite:* STAT 5371.

5377 (CSE 5377). Statistical Design and Analysis of Experiments. An introduction to statistical principles in the design and analysis of industrial experiments. Completely randomized, randomized complete, incomplete block, Latin square and Plackett-Burman screening designs. Complete and fractional factorial experiments. Descriptive and inferential statistics. Analysis of variance models. Mean comparisons. *Prerequisite:* Senior standing with a science or engineering major or permission of the instructor.

5385. Introductory Nonparametric Statistics. Introduction to nonparametric statistics with examples in the behavioral sciences, including choice and use of rank tests, runs test and rank order correlation. Tests for one-sample and two-sample cases. *Prerequisite:* STAT 5371, 5340/CSE 5370 or equivalent.

6304. Computational Statistics. Introduction to the fundamentals of statistical computing widely used by both theoretical and applied statisticians in both academics and industry. Divides subject matter into two areas: simulation experiments and statistical software. Includes generating random deviates from various distributions, analyzing statistical algorithms, exploring UNIX, working with S-Plus for data analysis and graphics, interfacing S-Plus to code written in C and/or FORTRAN, and managing and manipulating very large data sets. *Prerequisite:* STAT 6327 or concurrent enrollment in this course.

6327. Mathematical Statistics. Theory of probability distributions. Random variables and functions of random variables. Multivariate and conditional distributions. Sampling distributions and order statistics. Expected value, transformations and approximations. *Prerequisite:* Advanced calculus or permission of the instructor.

6328. Mathematical Statistics. Sufficiency and completeness. Unbiased, maximum likelihood and Bayes point estimators and minimizing risk. Confidence sets. Most powerful, uniformly MP and likelihood ratio tests. Large-sample approximations and contingency table analysis. *Prerequisite:* STAT 6327.

6336. Statistical Analysis. Analysis of data from one and two samples assuming normal distributions and independent errors. Discussion of paired sample analyses, goodness of fit and categorical data analysis topics. Introduction to simple linear regression analysis.

6337. Statistical Analysis. Emphasis on application of statistical principles in the design of experiments. Complete and fractional factorials, blocking, nesting, replication and randomization. Analysis of data from classical multifactor experimental designs with fixed and random effects. Multiple comparisons and contrasts of main effects and interactions. *Prerequisite:* STAT 6336.

6342. Advanced Statistical Quality Control. Investigation of statistical methods and management principles useful for understanding and improving measurable performance in human endeavors. Development of a "statistical thinking" foundation through the evaluation of case studies and class labs. *Prerequisite:* STAT 4340/CSE 4340 or STAT 5340/CSE 5370 or STAT 5371. Or, *corequisite:* STAT 6327 or 6336.

6345. Linear Regression. The classical tools of linear regression based upon least squares estimation and inference through the assumption of normally distributed errors. Topics in model formulation, data transformations, variable selection and regression diagnostics for influential observations. Collinear predictors and biased estimation. Survey of alternatives to least squares. *Prerequisite:* STAT 6337.

6346. Advanced Regression Analysis. Nonlinear least-squares estimation. Theory and applications of generalized linear models. Estimation, asymptotic distribution theory and tests for model parameters. Topics in spatial statistical modeling, including variogram estimation and kriging. *Prerequisite:* STAT 6345 or permission of the instructor.

6350. Analysis of Lifetime Data. Statistically based methods for analysis of life testing and failure data from complete and censored samples. Includes topics such as statistical lifetime distributions; types of censoring, probability and other graphical techniques; nonparametric and parametric estimation methods; and lifetime data regression. *Prerequisites:* STAT 6304, 6327, 6328, 6336, 6337 or equivalent.

6355. Applied Multivariate Analysis. Statistical methods of analysis of multivariate data, tests and estimation of multivariate normal parameters. Hotelling's T^2, discriminant analysis, canonical correlation, principal components and factor analysis. Emphasizes applications. *Prerequisite:* STAT 6337.

6358. Topics in Biostatistics. Introduction to various statistical methods that are widely used in the biosciences, especially biomedical research. Includes survival analysis, contingency tables, logistic regression, analysis of longitudinal data, design of clinical experiments, epidemiology and statistical genetics. Topics vary with instructor. *Prerequisite:* STAT 6328 or permission of the instructor.

6363. Time Series Analysis. Statistical methods of analyzing time series. Autocorrelation function and spectrum. Autoregressive and moving average processes. More general models, forecasting and stochastic model building. *Prerequisite:* Permission of the instructor.

6366. Statistical Consulting. Apprenticeship under an experienced consultant, with exposure to real problems. In addition to a variety of technical statistical issues, studies the existing literature on the nonstatistical aspects of the consulting endeavor including ethics and communication.

6370 (CSE 6370). Stochastic Models. Model building with stochastic processes in applied sciences. Formulates phenomena with uncertain outcomes as stochastic models and analyzes their properties. Discusses some specific problems from areas such as population growth, queuing, reliability, time series, and social and behavioral processes. Emphasizes statistical properties of the models. *Prerequisites:* STAT 5340/CSE 5370 and graduate standing.

6371. Probability Theory. An introduction to measurement of theoretic probability. Random variables, expectation, conditional expectation and characteristic functions. *Prerequisite:* STAT 6327 or permission of the instructor.

6372 (CSE 6372). Queueing Theory. Queueing theory as the theoretical basis for the analysis of stochastic service systems. Explores the underlying stochastic processes as the point processes of which Markov and renewal processes are two major examples. A course that emphasizes the formulation of queueing models and their behavioral and statistical analyses using Markov and renewal techniques. *Prerequisite:* An introductory course in stochastic processes (such as STAT 6370/CSE 6370, STAT 6376, 6379 or EE 5306).

6375. Sequential Analysis. Focuses on statistical inference when sample size is not predetermined. Stopping rules, sequential probability ratio tests, composite hypotheses, Bayes rules and sequential estimation. *Prerequisite:* STAT 6328.

6376. Stochastic Processes. Random walk, Markov processes, Poisson processes, waiting times, spectral density functions and applications to random noise problems. *Prerequisite:* STAT 6327.

6377. Multivariate Categorical Data Analysis. Structural models for counting data. Introduces the general log-linear model for contingency tables along with likelihood-ratio tests, hierarchical models and partitioning of likelihood-ratio statistics. *Prerequisites:* STAT 6328, 6337 or permission of the instructor.

6378. Multivariate Analysis. Theory and inference in the multivariate normal distribution. Regression, correlation, Wishart distribution, Hotelling's T^2, MANOVA and discriminant analysis. *Prerequisite:* STAT 6320 and 6328 or 6381.

6379. Introduction to Markov Processes. Branching processes, recurrent events, random walk, finite Markov chains and simplest time-dependent stochastic processes. *Prerequisite:* STAT 6327 or 6370/CSE 6370.

6380. Mathematical Theory of Sampling. Theorems concerning simple random sampling, stratified random sampling, cluster sampling, unequal probability sampling, ratio estimates, regression estimates, etc. *Prerequisite:* STAT 6328.

6381. Theory of Linear Models I. Theory of the general linear model. Estimatibility and testability. Theory of analysis of fixed, random and mixed models. *Prerequisites:* STAT 6328, 6337.

6382. Theory of Linear Models II. Variance component models, mixed models, intrablock analysis, incomplete block designs and factorials, and fractional replicates. *Prerequisite:* STAT 6381.

6385. Survey of Nonparametric Statistics. Robust and distribution-free techniques, order statistics, EDF statistics, quantiles, asymptotic distributions and tolerance intervals. Linear rank statistics for one, two and several sample problems involving location and scale. Runs, multiple comparison, rank correlation and asymptotic relative efficiency. *Prerequisite:* STAT 6328.

6386. Nonparametric Statistics. Continuation of topics covered in STAT 6385, including linear rank statistics and asymptotic relative efficiency. Also includes U-statistics, robustness, M-estimation, minimum distance estimation, adaptive procedures, density estimation, aligned ranks, jackknifing and bootstrapping. *Prerequisite:* STAT 6385.

6388. Large Sample Theory. Limit theorems useful in mathematical statistics. The foundation of asymptotic theory in statistics including modes of convergence, laws of large numbers and the central limit theorem. Systematic coverage of useful representations of certain basic statistics and large sample optimality of maximum likelihood procedures. *Prerequisites:* STAT 6328, 6371.

6390. Bayesian Statistics. An introduction to Bayesian inference. Covers current approaches to Bayesian modeling and computation. *Prerequisite:* STAT 6328.

6395. Special Topics in Statistics.

6398, 6399. Thesis.

7011. Supervised Internship. Supervised experience in statistical consulting, carried out as an internship in approved work settings outside the Center for Statistical Consulting and Research. *Prerequisite:* STAT 6304, 6327, 6328, 6336, 6337 or equivalent.

7100, 7300. Seminar.

7110, 7111, 7112. Seminar in Statistical Literature. Reports from papers in statistical journals, bibliographical problems, etc.

7327. Advanced Statistical Inference. Topics in statistical inference, estimation (point and interval estimates, Bayesian and likelihood), tests of hypotheses (invariant, unbiased, most powerful, conditional and Bayesian) and large-sample theory for multiparameter problems. *Prerequisite:* STAT 6371.

7362. Advanced Special Topics.

7363. Theory and Application of Spectral Analysis. Intended for advanced graduate students who want to do research in spectral analysis or who have a major interest in time series. *Prerequisites:* One term of stochastic processes (STAT 6376) and one term of time series (STAT 6363) or permission of the instructor.

8313. Research in Statistical Inference.

8196, 8396. Dissertation.

8197, 8397, 8697. Dissertation.

8198, 8398, 8698. Dissertation.

8199, 8399, 8699. Dissertation.

WOMEN'S AND GENDER STUDIES PROGRAM
Associate Professor Beth Newman, **Director**

Graduate Certificate in Women's and Gender Studies

The graduate certificate is offered through the Women's and Gender Studies Program and jointly based in the Dedman Graduate Program and the Perkins School of Theology. It is an interdisciplinary graduate-level certificate designed to enhance the lives of students, both female and male, by facilitating the integration of theories about gender and knowledge about the roles and achievements of women, both past and present, in global perspectives. The courses are designed to provide comparative and historical perspectives on women, gender and feminism. The certificate program draws upon courses from a variety of disciplines including anthropology, history, literary studies, media and film, and theology.

Admission Requirements

The requirements for admission to the Women's and Gender Studies Graduate Certificate Program include the completion of the graduate application form, the B.A. degree or its equivalent, a cumulative grade point average of 3.0 or above on a 4.0 scale, and sufficient previous study in women's studies or related areas to be able to satisfy the certificate requirements. The GRE test is not required; however, the student must provide an official transcript and letters of recommendation as indicated in the graduate application form. Students should submit the graduate application form through the Office of Research and Graduate Studies.

Women's and Gender Studies Graduate
Certificate Requirements (15 credit hours)

1. Formal registration for the certificate through SMU Dedman College and/or Perkins School of Theology. This shall include a proposed program plan for completion of the certificate developed with an adviser from the Office of the Women's and Gender Studies Program or a Perkins adviser.
2. An advanced feminist theory course (WGST 6300/TC 8375) offered by the Women's and Gender Studies Program in collaboration with Perkins School of Theology. This course will include the "classic" literature from feminist, womanist and mujerista perspectives and address current theoretical issues across relevant disciplines. The course will be taught in rotation by interested faculty associated with the Women's and Gender Studies Program and Perkins School of Theology.
3. Four additional courses that are Women's and Gender Studies approved core and departmental courses. (See list below.) Students taking Dedman undergraduate women's and gender studies courses must register using a 6000-level number and arrange a separate syllabus and assignments in conjunction with the pro-

fessor of record. Students are encouraged to petition the director of Women's and Gender Studies for credit for other graduate courses in which they engage in study appropriate to the intent of the certificate. Appropriate courses taken during matriculation at SMU, but prior to enrollment in the certificate, may count toward program hours.

4. A major research project or a supervised internship in a setting that addresses issues concerning women and/or gender. This project shall be delineated with an appropriate time of completion and included in the program plan in consultation with a Women's and Gender Studies or a Perkins Internship Office faculty member. Examples of suitable research projects include the second year paper, a performance, an exhibit or any other major research project acceptable to a graduate adviser in Women's and Gender Studies. Supervised internship settings for Perkins Master of Divinity students will require a learning goal for women's studies and shall be done in consultation with the Perkins Internship Office.

Graduate Certificate Program in Women's and Gender Studies

Course Options

ANTH 3310 Gender and Sex Roles

ANTH 3336 Gender and Globalization

ECO 4351 Labor Economics

ECO 5357 Economics of Human Resources

ENGL 3344 Victorian Gender

ENGL 3364 Women and the Southwest

ENGL 3367 Ethical Implications of Children's Literature

ENGL 3371 Joan of Arc

ENGL 3373 Masculinities

ENGL 3379 Contexts of Disability

FL 3312 Women in Modern China

FL 3359 Masculinities

HIST 3312 Women in American History

HIST 3317 Women in Latin American Society

HIST 3329 Women in Early Modern Europe

HIST 3330 Women in Modern European History

HIST 3348 Changing American Families

HIST 3355 Class and Gender in Ancient Society

HIST 3357 Joan of Arc

HIST 3394 The New Woman

HIST 3398 Women in Chinese History

MDVL 3352 Gender in the Middle Ages

PHIL 3305 Philosophy and Gender

PLSC 3370 Women and Politics

PLSC 4339 Women and the Law

PSYC 3350 Psychology of Women

RELI 3375 The Feminine Divine

RELI 3376 Constructions of Gender

SOCI 3351 Marriage and Family

SOCI 3371 Sociology of Gender

WS 3370 Women in the Southwest

WS 3381 Modern Myth-Making

WS 6300 Advanced Feminist Theory

Appropriate Courses From the Perkins School of Theology

HR 8331 Women in World Religions

HX 8329 Mary in Christian Tradition

ST 8345 Theologies of Hope and Liberation

ST 8375 Feminist, Womanist and Mujerista Theologies

CE 8338 Emancipatory Educational Ministry With Adolescent Girls: Liberating Ophelia and LaTomika

WO 8308 Women and Worship

WO 8327 Liturgy and Justice

PR 8332 Feminist Emancipatory Preaching

PC 8333 Pastoral Care and Counseling of Women

PC 8335 Sexual and Domestic Violence: Theological and Pastoral Concerns

PC 8345 Justice Issues in Pastoral Care

PS 8360 Women's Spiritual Quest

MN 8342 Women in Ministry

Administration and Faculty

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Lori S. White, *Vice President for Student Affairs*

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Susan Howe, *Associate University Counsel*
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FACULTY

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Dalia Abdelhady, *Assistant Professor of Sociology*, Ph.D., New York (Albany)
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Adriana Aceves, *Visiting Lecturer of Mathematics*, M.S., Arizona

Alejandro Aceves, *Professor of Mathematics*, Ph.D., Arizona
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Sabri Ates, *Assistant Professor of History*, Ph.D., New York
Karen Baker-Fletcher, *Professor of Systematic Theology*, Ph.D., Harvard
Peter J. Bakewell, *Professor of History and Edmund and Louise Kahn Chair in History*, Ph.D., Cambridge
Austin Baldwin, *Assistant Professor of Psychology*, Ph.D., Minnesota
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Eric Barnes, *Associate Professor of Philosophy*, Ph.D., Indiana
Raveendra N. Batra, *Professor of Economics*, Ph.D., Southern Illinois
Johannes Bauer, *Assistant Professor of Biology*, Ph.D., Freie Universitäet Berlin, Germany
William Edward Beauchamp, *Associate Professor of French*, Ph.D., Columbia
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Denis Bettaver, *Lecturer of French*, M.A., Texas (Arlington)
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Damiano Bonuomo, *Lecturer of Italian*, M.A., Florida
Jessica A. Boon, *Assistant Professor of Church History*, Ph.D., Pennsylvania
Richard Bozorth, *Associate Professor of English*, Ph.D., Virginia
Debra Branch, *Lecturer of Sociology*
Teresa Brentegani, *Lecturer of Italian*, B.A., Milan
Caroline Brettell, *Professor of Anthropology and University Distinguished Professor of Anthropology*, Ph.D., Brown
Alan S. Brown, *Professor of Psychology*, Ph.D., Northwestern
Seyom Brown, *Professor of Political Science and John Goodwin Tower Distinguished Chair in International Politics and National Security*, Ph.D., Chicago
Christine E. Buchanan, *Professor of Biological Sciences*, Ph.D., Chicago
Paola Buckley, *Lecturer of French*, M.A., New York
Ronald Butler, *Professor of Statistical Science and C.F. Frensley Chair in Mathematical Sciences*, Ph.D., Michigan
John D. Buynak, *Professor of Chemistry*, Ph.D., Rice
Jing Cao, *Assistant Professor of Statistical Science*, Ph.D., Missouri
Ted A. Campbell, *Associate Professor of Church History*, Ph.D., SMU
Thomas W. Carr, *Associate Professor of Mathematics*, Ph.D., Northwestern
Bradley Kent Carter, *Associate Professor of Political Science*, Ph.D., California (Berkeley)
Carolyn E. Channell, *Senior Lecturer of English*, M.A., Case Western Reserve
Mark A. Chancey, *Associate Professor of Religious Studies*, Ph.D., Duke
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