DEDMAN COLLEGE
OF HUMANITIES AND SCIENCES

GRADUATE PROGRAMS

SOUTHERN METHODIST UNIVERSITY

2014 –2015

NOTICE OF NONDISCRIMINATION

Southern Methodist University will not discriminate in any employment practice,

CONTENTS

OFFICIAL UNIVERSITY CALENDAR

This calendar includes a list of religious holidays for use in requesting excused absences according to University Policy 1.9. For religious holidays not listed, students should contact the Office of the Chaplain. Graduate programs in the Cox School of Business, the Perkins School of Theology, the Dedman School of Law and the Department of Dispute Resolution and Counseling within the Simmons School of Education and Human Development have different calendars.

Fall Term 2014

April 7–25, Monday–Friday: Enrollment for fall 2014 continuing students for all undergraduates and for graduates in Dedman College, Lyle and Meadows.

May, July, August – TBA: Academic Advising, Enrollment and Orientation conferences for new first

November 13, Thursday: **Last day for December graduation candidates to change grades of Incomplete.**

November 14–15, Friday–Saturday: **Homecoming Weekend.**

November 21, Friday: **Students should file for May graduation. The last day to file is January 25, 2015.**

November 25, Tuesday: **Last day to withdraw from the University.**

November 26, Wednesday: **No classes.**

November 27–28, Thursday–Friday: **Thanksgiving holiday. University closed.**

December 3–8, Wednesday–Monday: **No final examinations or unscheduled tests/papers.**

December 4, Thursday: **Last day for oral/written examinations for December graduate degree candidates.**

December 8, Monday: **Last day of classes.**

December 9–10, Tuesday–Wednesday: **Reading days.**

December 11–17, Thursday–Wednesday: **Examinations. (No examinations scheduled for Saturday or Sunday.)**

December 18, Thursday: **Residence halls close at 10 a.m. for winter break. (December graduates and residential students who need winter break housing should contact the Department of Residence Life and Student Housing.)**

December 20, Saturday: **Official close of the term and date for conferral of degrees. Also, graduation ceremony for December graduates.**

December 24–January 1, Wednesday–Thursday: **University closed.**

December 25, Thursday: **Christmas Day.**

January Interterm 2015

Some areas of instruction offer selected courses during the January interterm, December 18, 2014 ±January 14, 2015.

January 1, Thursday: **1HZ <HDU¶V 'D\ 8QLYHUVLW\ FORVHG**

January 5, Monday: **First day of classes.**

January 6, Tuesday: **Last day to declare pass/e JETBT1 0 0 1 219.79 7.7542 Tm[ )]TJETBT1BT/F3 6.**

April 29– May 4, Wednesday– Monday: **No final examinations or unscheduled tests or papers.**

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

May 4, Monday: **Last day of classes.**

May 5, Tuesday: **Reading day.**

May 6– 12, Wednesday– Tuesday: **Examinations. (No examinations scheduled for Sunday.)**

May 13, Wednesday: **Residence halls officially close for nongraduating students.**

May 15, Friday: **Baccalaureate.**

May 16, Saturday: **Commencement.**

May 17, Sunday: **Residence halls officially close for graduating seniors.**

May Interterm 2015

Some areas of instruction may offer a limited number of selected courses during the May term, May 13 ±30. Each May term course may have unique start and end dates within the May 13 ±30 term to accommodate the particular needs of the course.

Classes meet 4 hours a day, Monday– Friday.

May 14, Thursday: **First day of classes.**

May 15, Friday: **Last day to enroll or add courses. Also, last day to declare pass/fail, no credit or first-year repeated course-grading options.**

May 25, Monday: **Memorial Day. University closed.**

May 26, Tuesday: **Last day to drop a course or withdraw from the University.**

May 29, Friday: **Last day of classes, including examinations.**

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

Students planning to complete their degree requirements during the May term should complete an Application for Candidacy to Graduate (via the Student Center) for August degree conferral. Specific information is available from academic degree counselor.

The following dates are applicable only for SMU-in-Taos. Permission of the SMU-in-Taos program is required for all enrollments.

May 13, Wednesday: **Travel day and arrival of students, 2 ±6 p.m.**

May 14, Thursday: **First day of classes.**

May 29, Friday: **Examinations.**

May 30, Saturday: **Departure of students.**

Summer Term 2015

The summer term consists of three primary sessions: first session, second session and a full summer session. Each primary session has different deadline dates. There are also shorter and longer sessions to accommodate the particular needs of the various instructional units such as SMU Abroad, SMU-in-Taos and the Perkins School of Theology.

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

May 25, Monday: **Memorial Day. University closed.**

June 1, Monday: **First day of classes.**

June 4, Thursday: **Last day to enroll, add courses or drop courses without a grade record. Also, last day to file for August graduation.**

June 10, Wednesday: **Last day to declare pass/fail, no credit or first-year repeated course-grading options.**

July 3, Friday: **Independence Day holiday. University closed.**

July 4, Saturday: **Independence Day.**

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

July 23, Thursday: **Last day to drop a course.**

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

August 4, Tuesday: **Last day of classes, including examinations. Also, official close of the term and date for conferral of degrees.**

Classes meet 2 hours a day, Monday– Friday.

May 25, Monday: **Memorial Day. University closed.**

June 1, Monday: **First day of classes.**

June 2, Tuesday: **Last day to enroll, add courses or drop courses without a grade record.**

June 4, Thursday: **Last day to declare pass/fail, no credit or first-year repeated course-grading options. Also, last day to file for August graduation.**

June 23, Tuesday: **Last day to drop a course.**

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

June 30, Tuesday: **Last day of classes, including examinations.**

The following dates are applicable only for SMU-in-Taos. Permission of the SMU-in-Taos program is required for all enrollments.

June 3, Wednesday: **Arrival of students.**

June 4, Thursday: **First day of classes.**

June 5, Friday: **Last day to enroll, add courses or drop courses without a grade record. Permission of the SMU-in-Taos program is required for all enrollments.**

Major Religious Holidays

The following list of religious holidays is 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.

Christmas: **December 25, 2014**   Easter Sunday: **April 5, 2015**

Good Friday: **April 3, 2015**   Easter Sunday (Orthodox): **April 12, 2015**

Janmashtami: **August 17, 2014**   Diwali: **October 23, 2014**

Dasera: **October 4, 2014**

Rosh Hashanah: **September 24 ±25, 2014**   Hanukkah: **December 17 ±24, 2014**

Yom Kippur: **October 4, 2014**   Pesach (Passover): **April 4 ±11, 2015**

Sukkot: **October 9 ±15, 2014**   Shavuot: **May 24 ±25, 2015**

Eid al-Adha: **October 4, 2014**   Mawlid an-Nabi: **January 3, 2015**

Islamic New Year: **October 25, 2014**   Ramadan: **June 18 ±July 18, 2015**

Ashura: **November 5, 2014**   Eid al-Fitr: **July 18, 2015**

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

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 will create, expand and impart knowledge through

Offering only a handful of degree programs at its 1915 opening, the University presently awards baccalaureate degrees in more than 80 programs through five undergraduate schools and a wide variety of graduate degrees through those and one professional school.

Of the 10,929 students enrolled for the 2013 fall term, 6,357 were undergraduates and 4,572 were graduate students. The full-time equivalent enrollment was 6,271 for undergraduates and 3,176 for graduate students.

 1 HDUO\ DOO WKH VWXGHQWV LQ 608¶V ILUVW FODV 50 SHUFHQW RI WKH 8QLYHUVLW\¶V XQGHUJUDGXDWH Texas. In a typical school year, students come to SMU from every state; from more than 100 foreign countries; and from all races, religions and economic levels.

Undergraduate enrollment is 51 percent female. Graduate and professional enrollment is 42 percent female.

A majority of SMU undergraduates receive some form of financial aid. In 2013 ± 2014, 75 percent of first-year students received some form of financial aid, and 35 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- 0 HWKRGLVW 7KH IRXQGHUV¶ SMU was that it become not necessarily a great *Methodist* university, but a great *university*.

ACADEMIC ACCREDITATION

Southern Methodist University is accredited by the Southern Association of Colleges DQG 6FKRROV &RPPLVVLRQ RQ &ROOHJHV WR DZDUG E doctoral degrees. Students should contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of Southern Methodist University. Note: The commission is to be contacted only if there is evidence WKDW DSSHDUV WR VXSSRUW significant noncompliance with a requirement or standard.

Individual academic programs are accredited by the appropriate national professional associations.

In Dedman College, the Department of Chemistry is accredited annually by the Committee on Professional Training of the American Chemical Society, and the 3V\FKRORJ\ 'HSDUWPHQW¶V 3h.psyFKcohRoOgRy J\ is accrFeEdRiDteUd by Gth LDVeFLQF American Psychological Association.

The Cox School of Business is accredited by AACSB International, the Association to Advance Collegiate Schools of Business (777 South Harbour Island Boulevard, Suite 750, Tampa, Florida 33602-5730; telephone number 813-769-6500). The Cox School was last reaccredited by AACSB International in 2012.

The Dedman School of Law is accredited by the American Bar Association. The ABA conducted its inspection in 2012, and the Dedman School of Law was reaccredited in 2013.

In the Linda and Mitch Hart eCenter, The Guildhall

degree Bachelor of Science is accredited by the Computing Accreditation Commission of ABET. The undergraduate computer science program that awards the degree Bachelor of Arts is not accredited by a Commission of ABET. ABET does not provide accreditation for the discipline of management science.

In the Meadows School of the Arts, the art and art history programs are accredited through the National Association of Schools of Art and Design, the Dance Division is accredited by the National Association of Schools of Dance, the Music Division is accredited by the National Association of Schools of Music, the music

SMU LIBRARIES

www.smu.edu/libraries

FINANCIAL INFORMATION

TUITION, FEES AND LIVING EXPENSES

A catalog supplement, the *Financial Information Bulletin*

Any outstanding debts to the University that do not include Title IV funds will be deducted from the credit balance prior to issuing a refund. All other debts should be paid directly by the student.

A student whose University account is overdue or who in any other manner has an unpaid financial obligation 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

PAYMENT PLAN OPTIONS
SMU Monthly Payment Plan

The SMU TuitionPay Payment Plan administered by Sallie Mae allows term charges to be paid in monthly installments. Students can enroll in a payment plan at www.tuitionpaymentplan.com/smu. Sallie Mae consultants are available at 877-279-6092 to answer questions or help with the online enrollment process.

Annual payment plans are available in 12-month, 10-month and eight-month formats. Term payment plans are available i

UNIVERSITY LIFE AND SERVICES

OAK RIDGE ASSOCIATED UNIVERSITIES

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 U.S. Department of Energy 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, students should contact Dr. James E. Quick, ORAU councilor for SMU (214-768-4345), Monnie E. Champion, ORAU corporate secretary (423-576-3306), or visit the ORAU website at www.orau.org.

SMU-IN-PLANO

www.smu.edu/plano

SMU opened a campus in Plano's Legacy Business Park in fall 1997 to 1) extend SMU's resources to meet the educational needs of residents in Collin County and beyond, 2) make enrollment in graduate-level programs more convenient for working professionals and 3) collaborate with area businesses by offering programs to serve the training needs of their employees and by providing corporate meeting space.

SMU-in-Plano serves more than 800 adult students each year (excluding enrollment in noncredit courses) through a variety of full-time, evening and weekend programs leading to master's degrees and/or professional certificates in business administration, counseling, dispute resolution, liberal studies, education and learning therapies, engineering, and video game technology (The Guildhall at SMU). During the summer, nearly 2,000 children participate in a variety of programs designed to enhance their academic skills. The campus also provides important outreach services to the surrounding Collin County communities; these services include the Mediation and Arbitration Center, the Diagnostic Center for Dyslexia and Related Disorders, and the Center for Family Counseling.

More information is available online or through the SMU-in-Plano office: 5236 Tennyson Parkway, Building 4, Plano TX 75024, 972-473-3400.

The mission of the Department of Residence Life and Student Housing is to advance the goals and objectives of the University by creating residential communities that empower residents to value learning, citizenship and leadership. To support SMU's mission, goals and objectives, RLSH develops and sustains the residence halls and apartments as communities that support the broad range of student needs. To this end, RLSH seeks opportunities to promote an intellectual culture in residence halls that complements an already flourishing campus social culture. The University

Special Housing Needs

Students having special housing needs because of a disability should contact the SMU Office of Disability Accommodations and Success Strategies in order to establish eligibility for accommodations. When applying for housing, students should also submit information to RLSH regarding a request for accommodations. DASS and RLSH will work together with the student on their specific situation to make necessary accommodations.

General Housing Information

Each apartment is equipped with a telephone, local telephone service, voice mail system and wireless Ethernet connections to the University ¶ 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 the graduate hall. For more information, students should visit www.smu.edu/housing or contact the Department of Residence Life and Student Housing, Southern Methodist University, PO Box 750215, Dallas TX 75275-0215; phone 214-768-2407; fax 214-768-4005; housing@smu.edu.

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

The Honor System

All SMU students, with the exception of graduate students enrolled in the Cox School of Business, Dedman School of Law, Perkins School of Theology, or Simmons School of Education and Human Development, are subject to the jurisdiction of the Honor Code (www.smu.edu/studentlife, "Student Handbook" link) and as such are required to demonstrate an understanding of and to uphold the Honor Code. In support of the Honor Code, the Honor Council has the responsibility to maintain and promote academic integrity. 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, nominated by the Faculty Senate, also serve on the Honor Council.

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 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. As part of the Office of the Dean of Student Life, the Student Conduct and Community Standards Office (www.smu.edu/studentconduct) 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.

Standards of conduct are established through faculttyulttyult

personal capacities for intelligent thought and action, mature students understand

a setting for meditation, prayer and reflection for all faiths. The Quiet Place is open daily and available with no prior reservation needed.

DISABILITY ACCOMMODATIONS AND SUCCESS STRATEGIES

DASS offers comprehensive support services for any SMU student with a disability. Services include classroom accommodations for qualified students with a learning

the Student Health Insurance Plan by the drop/add date each term. Students can enroll in SHIP, after they have enrolled for classes, by selecting the ʺHealth Insurance ʺbutton on the ʺStudent Center ʺcomponent of My SMU. A domestic student who already has private health insurance coverage must waive SHIP coverage to avoid automatic enrollment into the plan and thereby have the semiannual premium charge applied to his or her University account. Waivers will not be accepted nor will changes be made after the deadline each term. For more information and instructions on how to WAIVE or ELECT coverage, students should visit the website www.smu.edu/healthinsurance. Students who elect SHIP for the fall term will automatically be re-enrolled in mid-December unless the insurance office receives notification of the desire to waive for spring. Note: Health insurance is separate from the student Health Center fees and is paid for separately.

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,

student. Records are not made available to parents, SMU administrators, faculty or staff without the student's written consent.

Counseling and Psychiatric Services. CAPS provides psychiatric evaluation, cri-

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 My SMU, the University's Web-based self-service system. Students may be prevented from enrolling if their information is insufficient or outdated. Changes to parent information should be reported by contacting records@smu.edu, and the email should include the student's full name and SMU student ID number.

The University issues all students an email address. Students may have other email addresses, but the University-assigned email 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

Transcripts are $12.25 per copy. Additional copies in the same request mailed to the same address are $3.50. Additional copies mailed to different addresses are $12.25 a copy. PDF transcripts are $16.00 per email address and are available only for students who attended after summer 1996. Note: No incomplete or partial 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. Instructions for requesting a transcript to be mailed or picked up on campus are available at www.smu.edu/registrar (³Transcript Requests ´link). A student may request his or her official transcript through the online My SMU Student Center. Requests are processed through the National Student Clearinghouse. Telephone and email requests are not accepted. Students or their specified third party can pick up their transcripts at the University Registrar ¶Office, 101 Blanton Student Services Building. Transcripts may be delayed pending a change of grade, degree awarded or term grades.

SMU is permitted, but not required, to disclose to the parents of a student any information contained in the education recorc

Academic Grievance and Appeals Procedures
for Students With Disabilities

The University policy for academic grievance and appeals procedures for students with disabilities is available in the Office of Disability Accommodations and Success Strategies and the University Registrar's Office.

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 students engaged in graduate studies. Individuals who enroll for fewer than these minimum hours are designated as part-time students.

Cautionary Note: Federal financial aid agencies and some other agencies require a minimum number of hours of enrollment for full-time status and do not make exceptions for internship, co-op or student-teaching enrollments. Students on financial aid should consult a Financial Aid Office adviser regarding minimum enrollment requirements for their situation.

Minimum and maximum course loads allowed are based on the school of record.

Stop Enrollment/Administrative Withdrawal

Each fall, spring and summer term has an enrollment period during which the formal process of enrollment in the University is completed. Prior to each enrollment period, the University Registrar's Office will publish enrollment instructions.

Each student is

Note: Policies on refunds for withdrawal from the University are found in the Financial Information section of this catalog and in the *Financial Information Bulletin*, which can be accessed online at www.smu.edu/bursar ('Financial Bulletin ' link). No refunds are made without an official withdrawal.

Students should be aware of the difference between a *drop* and a *withdrawal* and remember that they have different deadlines and separate financial policies. The deadlines for each are posted each term on the Official University Calendar at www.smu.edu/registrar. A *drop* occurs when a student removes one or more courses from his or her schedule and remains enrolled in at least one credit hour for the term. A *withdrawal* occurs when removing the course or courses will result in the student being enrolled in zero hours for the term.

If a student removes all courses from his or her schedule prior to the first day of the term, the transaction is considered a *cancellation* and does not result in financial penalty or impact the student's transcript.

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 and secure approval from his/her academic dean. The academic dean's office will then submit the form to the Office of the University Registrar. The effective date of the withdrawal is the date on which the Student Petition for Withdrawal is processed in the University Registrar's Office. Discontinuance of class attendance or notification to the instructors of intention to withdraw does not constitute an official withdrawal.

The enrollment of students who withdraw on or before the fifth day of regular classes as listed on the Official University Calendar will be canceled. Courses and grades are not recorded for canceled enrollments; however, the student will owe a portion of his/her tuition and fees. Additional information is available in the *Financial Information Bulletin*, which can be accessed online at www.smu.edu/bursar ('Financial Bulletin ' link). A student who withdraws after the fifth class day will receive the grade of *W* in each course in which he or she enrolled.

Medical withdrawals and mandatory administrative withdrawals allow a prorated refund of tuition and fees and have conditions that must be met prior .

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. The individual §name does not appear on class rosters or grade rosters.
3. Regular admission and enrollment procedures are not conducted for auditors.
4. The audit fee is nonrefundable.
5. If credit is desired, the course must be enrolled for and repeated as a regular course, and the regular tuition must be paid.

No-Credit Enrollment

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, 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

Interpretation of Course Numbers

Grade of F, D or W

Failing is graded *F*. If the student's work is incomplete, poor quality and not acceptable, a grade of *F* will be given. 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 advisers about repeating the course so that they will be adequately prepared for work in the following course.

The grade of *W* cannot be recorded unless completion of the 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 because the act of officially dropping/withdrawing is irrevocable.

Grade of Incomplete

A student may temporarily receive a grade of Incomplete (*I*) a substantial portion 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.

The grade of *I* is normally changed to a final grade within one year but no later than the time of graduation.

At the time a grade of *I* is given, the instructor must stipulate in writing to the student the requirements and completion date that are to be met and the final 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 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 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

e grade of

Academic Advising

For an effective advising relationship, the student must be prepared when meeting with the adviser. The student must initiate the advising appointment. The adviser will give assistance to the student, but the student has the final responsibility for the accuracy of the enrollment, the applicability of courses toward the degree requirements, and his or her academic performance.

Students are assigned an academic adviser by their academic dean's office or records office. A student who enrolls without first meeting with his or her assigned academic adviser may be subject to sanctions including, but not limited to, cancellation of the term enrollment and restriction from the self-service enrollment functions.

Leave of Absence

A leave of absence is a temporary leave from the University — a kind of "time out" — that may be necessary during an academic career. Students may elect to take leaves of absence for a variety of reasons, including 1) medical reasons due to accident or illness, 2) family crises or other personal situation that requires an extended absence from school, 3) financial issues that may take time to resolve, and 4) academic difficulties that may best be handled by taking time to refocus on college work.

Typically, a leave of absence is for one term or one academic year. A student may extend a leave of absence by contacting his or her academic department representative. The process to return to SMU after a leave-of-absence period can be an easy one, especially if the student has gone through the steps to file for a leave of absence and planned ahead for the return. Following SMU's leave-of-absence guidelines helps 1) assure that the degree requirements per the catalog of record when the student initially matriculated at SMU still apply upon return, 2) assist with financial aid processing, and 3) provide the support needed to return to SMU and successfully finish the degree.

The SMU Leave of Absence Policy provides students with a formal process to "stop out" of SMU for either voluntary or involuntary reasons. Typically, *a leave of absence* is for a temporary departure from the institution; however, *intended permanent withdrawals* from SMU will also be processed under the Leave of Absence Policy.

The first step to effect a leave of absence is for the student to arrange an appointment to meet with his or her academic adviser, who will then assist the student with the process.

Academic Progress

Failure to meet established minimum acceptable standards of academic or disciplinary performance can result in probation, suspension or dismissal. Information regarding disciplinary action can be f

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. 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. More information is available at www.smu.edu/srk.

1. Academic Programs: www.smu.edu/srk/academics
   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: www.smu.edu/srk/enrollment
   Registrar, Blanton Student Services Building, Room 101
   0 0 1 rg111.26 345.07 114.77 0.4800 1 4.77 0.4801.

c. Terms and conditions under which students receiving Federal Direct Loan or Federal Direct 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.

7. Campus Police: www.smu.edu/srk; www.smu.edu/pd
   SMU Police Department, Patterson Hall
   214-768-1582

   Southern Methodist University's Annual Secu[rity report 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.

8. Student Appeals and Complaints

   Southern Methodist University operates with integrity in all issues and is dedicated to preserving the rights of all members of the University community. Categories for which students may wish to reach out for advice and assistance and/or to submit an appeal or register a complaint are as follows: academics, code of conduct, discrimination, financial issues, honor code and privacy issues. An overview of the roles, responsibilities and procedures for complainants and the University is outlined in each of the areas below.

   a. Academic Appeals and Petitions
      http://smu.edu/provost/acad_petitions.asp

   b. Student Code of Conduct
      http://smu.edu/studentlife/studenthandbook/PCL_03_Conduct_Code.asp

   c. Office of Institutional Access and Equity
      http://www.smu.edu/IAE

   d. Financial Responsibility and Confidentiality
      http://www.smu.edu/LegalDisclosures/FinancialAndConfidentiality

   e. Honor Code
      http://smu.edu/studentlife/studenthandbook/PCL_05_HC.asp

HISTORY

Dedman College of Humanities and Sciences has been the intellectual heart of the University since SMU was f R X Q G H G L Q 7 K H F R R O O H J H R Q H R I W 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.

* U D G X D W H Z R U N D W W K Kendance at SMU's non-the University a b first opened its doors in 1915. Doctoral work was begun in 1959. Graduate faculty

ADMISSION

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.

MASTER'S DEGREES

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*

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 must be presented for inspection at the Office of Research and Graduate Studies.

Students who intend to graduate will apply online through My SMU by completing the Application for Candidacy to Graduate form. Requirements and deadlines are posted on www.smu.edu/graduate.

In submitting a thesis, the student thereby grants permission to the dean of Central University Libraries 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 g

out 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 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 they 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 the Dissertation for Submission

The basic requirements for preparing the dissertation are outlined in the *Thesis/ Dissertation Guide* located online at www.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 dean of Central University Libraries to make copies at the G H Doss Print, 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.	Departmental examination in a language	Mandatory
Medical Anthropology	M.A. (36 hours)	Individually prescribed	Prohibited
Molecular and Cell Biology	M.A. (36 hours)	Individually prescribed	Prohibited
	M.S. (30 hours)	Individually prescribed	Mandatory
	Ph.D.	Individually prescribed	Mandatory
Chemistry	M.S. (30 hours)	None	Mandatory
	Ph.D.	None	Mandatory
Geology	M.S. (30 hours)	None	Mandatory
	Ph.D.	None	Mandatory
Geophysics	M.S. (33 hours)	None	Optional
	Ph.D.		
Economics		None	Optional
	Ph.D.	None	Mandatory
Applied Economics	M.A. (36 hours)	None	
Applied Economics and Predictive Analytics	M.S.	None	

English

ANTHROPOLOGY

Professor **Karen Lupo,** Department Chair

Professors: **Eric G. Bing, Caroline Brettell, Karen Lupo, David Meltzer, Ben Wallace, Ronald Wetherington.** Associate Professors: **Michael Adler, Sunday Eiselt, Victoria Lockwood, Carolyn Smith-Morris.** Assistant Professors: **Brigitte Kovacevich, Nia Parson, Christopher Roos.** Professor of Practice: **Kacy Hollenback.** Emeritus Professors: **Anthony E. Marks, Ladislav Novak, Garth Sampson, Fred Wendorf, David J. Wilson.**

MASTER OF ARTS IN MEDICAL ANTHROPOLOGY

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

THE COURSES (ANTH)

ANTH 5310 (3). HUMAN OSTEOLOGY: BIOLOGY OF THE HUMAN SKELETON. Analysis of the human musculoskeletal system in both forensic and ancient contexts. In this laboratory course, students will learn the measurement and assessment of sex, age, race and stature.

ANTH 5334 (3). HISTORY OF ANTHROPOLOGY, PART ONE. Analytical history of anthropology from the Classical period to the 20th century. Explains the content and development of theory, method, and interpretation.

ANTH 5335 (3). HISTORY OF ANTHROPOLOGY, PART TWO. Traces the theoretical developments in ethnology and archaeology from 1960 to the present, with intense readings and a focus on the potential utility of theoretical coherence in the discipline.

ANTH 5336 (3). HEALTH IN CROSS-CULTURAL PERSPECTIVE. Cross-cultural study of the cultural construction and social organization of medical systems in preindustrial and industrialized societies, including the political economy of health, ethnomedicine, international health, ethnopharmacology, and bioethics. *Prerequisite:* ANTH 2301 or 3301, or permission of instructor.

ANTH 5344 (3). RESEARCH METHODS IN ETHNOLOGY. Examination of methodologies and techniques appropriate for different types of ethnological research.

ANTH 5355 (3). SEMINAR IN THE SOUTHWEST. Focuses on the development of archaeology in the American Southwest by placing it in historical context, discussing the social role of archaeology in general. Also, 19th-century exploration and the impact of early archaeological finds; the development of museums, tourism, national monuments, and field schools; and the changing role of Native Americans.

ANTH 5359/ENGL 5378 (3). 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.

ANTH 5381 (3). FIELD METHODS IN ARCHAEOLOGY. Methods of excavation, recording, and interpretation used in archaeological research. Students may petition to have this course fulfill the lab science requirement. (Fort Burgwin Research Center)

ANTH 5382 (3). FIELD METHODS IN ARCHAEOLOGY. Methods of excavation, recording, and interpretation used in archaeological research. Students may petition to have this course fulfill the lab science requirement. (Fort Burgwin Research Center)

ANTH 5681 (6). FIELD METHODS IN ARCHAEOLOGY. Participants are engaged in all aspects of archaeological field and laboratory research, including excavation, recording of finds, survey mapping of sites, laboratory analyses of archaeological materials, and interpretation of intact archaeological contexts. (Fort Burgwin Research Center)

ANTH 5981 (9). FIELD METHODS IN ARCHAEOLOGY. Participants are engaged in all aspects of archaeological field and laboratory research, including excavation, recording of finds, survey mapping of sites, laboratory analyses of archaeological materials, and interpretation of intact archaeological contexts. (Fort Burgwin Research Center)

ANTH 6033 (0). 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.

ANTH 6034 (0). TEACHING SEMINAR. Noncredit teaching seminar for graduate students.

ANTH 6049 (0). GRADUATE FULL-TIME STATUS. For students not yet advanced to candidacy.

ANTH 6156 (1). RESEARCH IN ANTHROPOLOGY. Independent study and research.

ANTH 6256 (2). RESEARCH IN ANTHROPOLOGY. Independent study and research.

ANTH 6300 (3). 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.

ANTH 6301 (3). PRINCIPLES OF ARCHAEOLOGY. An advanced seminar course dealing with the fundamentals of modern archaeology.

ANTH 6302 (3). STATISTICS IN ANTHROPOLOGY. This is an introductory graduate-level course describing the specific use of quantitative and statistical methods in the subdisciplines of archaeology and cultural anthropology.

ANTH 6303 (3). 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.

ANTH 6335 (3). 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.

ANTH 6384 (3). GLOBAL ISSUES AND DEVELOPMENT: AN OVERVIEW. **An introduction to the major forces driving globalization and economic development today, analyzing how these forces impact the lives, cultures, and identities of peoples around the world, with an emphasis on the developing world.**

ANTH 6385 (3). COASTAL AND AQUATIC ARCHAEOLOGY. **Seminar on the use of coastlines,**

BIOLOGICAL SCIENCES

Professor Santosh, Department Chair

Professors: Christine Buchanan, Richard Jones, Paul Ludden, William Orr, John Ubelaker, Steven Vik, Pia Vogel. Associate Professors: Robert Harrod, John Wise. Assistant Professor: Johannes Bauer. Professor of Practice: Bianca Batista. Senior Lecturer: Eva Oberdörster. Lecturer: Teresa Strecker. Emeritus Professors: John McCarthy, Lawrence S. Ruben, Franklin Sogandares-Bernal.

ADMISSION REQUIREMENTS

In addition to meeting the minimum requirements described by the Office of Research and Graduate Studies, an applicant 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 graduate school admission test. Three letters of recommendation from individuals who know the candidate well and can speak to the candidate's abilities should be submitted before the candidate is admitted to the program.

GOOD STANDING

A student must maintain a B average (3.000 on a 4.000 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 a second language, computer programming and statistical methodology or in other cognate fields will be determined for each candidate by a departmental advisory committee.

MASTER OF ARTS IN MOLECULAR AND CELLULAR BIOLOGY

The M.A. in molecular and cellular biology 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 30 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.

MASTER OF SCIENCE IN MOLECULAR AND CELLULAR BIOLOGY

The M.S. in molecular and cellular biology 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.

duction to the technology, biology, and software exploited by molecular biology, genealogy, and medical diagnostic labs. *Prerequisites:* C- or better in BIOL 3304 and junior standing.

BIOL 5310/CHEM 5310 (3). 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. Includes 3 hours of lecture each week. *Prerequisites:* BIOL 1401, 1402; CHEM 3371, 3372. The accompanying laboratory (BIOL 5110) is strongly recommended for biology majors. If CHEM 5310 is counted toward a chemistry major or minor, it cannot be counted toward a biological sciences major or minor.

BIOL 5311/CHEM 5311 (3). BIOLOGICAL CHEMISTRY: METABOLISM. Introduction to the pathways and regulatory events in the metabolism of carbohydrates, lipids, amino acids, and nucleotides. Includes 3 hours of lecture each week. *Prerequisites:* CHEM 3371, 3372. If CHEM 5311 is counted toward a chemistry major or minor, it cannot be counted toward a biological sciences major or minor.

BIOL 5312/CHEM 5312 (3). PHYSICAL BIOCHEMISTRY. Physical chemistry of macromolecules and biological membranes, with an emphasis on the thermodynamics of solutions. *Prerequisites:* BIOL 1401, 1402; MATH 1338 or the equivalent; CHEM 3372; CHEM/BIOL 5310. *Recommended:* CHEM 5381 or 5383. If CHEM 5312 is counted toward a chemistry major or minor, it cannot be counted toward a biological sciences major or minor.

BIOL 5325 (3). GENERAL AND MOLECULAR VIROLOGY. Emphasis on the molecular as-

BIOL 6222 (2). CONCEPTS IN MOLECULAR GENETIC INVESTIGATION. **This course instructs students in molecular genetic techniques: DNA isolation, restriction digestion/ electrophoresis, PCR, bacterial transformation, plasmid purification, in vitro mutagenesis, genetic testing, and in silico analysis of DNA sequences.**

BIOL 6270 (2). GRADUATE RESEARCH. Research in the biological sciences.

BIOL 6304 (3). CONCEPTS IN GENETIC ANALYSIS. An introduction to the structure, function, and transmission of the genetic material.

BIOL 6306 (3). HUMAN PHYSIOLOGY. Homeostatic control mechanisms in vertebrates, focusing on humans. Includes 3 hours of lecture each week.

BIOL 6375 (3). SCIENTIFIC ANALYSIS AND WRITING IN BIOLOGY. **Development of skills necessary for the preparation of grant applications and of scientific manuscripts for publication. Three lecture, discussion, or reading hours each week.**

BIOL 6377 (3). CONCEPTS IN BIO/NANOTECHNOLOGY. **Introduction to state-of-the-art approaches developed to improve the production of food, pharmaceuticals, and vaccines by using microbial, plant, and animal sources. The implication of bio/nanotechnology in medicine and research are discussed and researched.**

BIOL 6380 (3). INTRODUCTION TO RESEARCH.

BIOL 6381 (3). INTRODUCTION TO RESEARCH.

BIOL 6398 (3). THESIS. **Thesis in the biological sciences. Contact the department for more information.**

BIOL 6399 (3). THESIS. **Thesis in the biological sciences. Contact the department for more information.**

BIOL 7000 (0). RESEARCH IN BIOLOGY. **Research in the biological sciences. Contact the department for more information.**

BIOL 7315 (3). SELECTED TOPICS. **Selected topics in the biological sciences. Contact the department for more information.**

BIOL 7316 (3). SELECTED TOPICS. **Selected topics in the biological sciences. Contact the department for more information.**

BIOL 8049 (0). GRADUATE FULL-TIME STATUS.

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CHEMISTRY

Professor **Elfi Kraka,** Department Chair

Professors: **Edward Biehl, John Buynak, Dieter Crèmer, Elfi Kraka, Werner Horsthemke, Michael Lattman, Mark Schell, David Son, Patty Wisian-Neilson.** Assistant Professors: **Alexander Lippert, Peng Tao, Nicolay Tsarevsky, Brian Zoltowski.** Professor of Practice: **Jennifer 2 ¶ % U** Senior Lecturer: **Andrea Adams.** Lecturer: **Helen Babbili.** Emeritus Professor: **John Maguire.**

ADMISSION REQUIREMENTS

In addition to meeting the requirements described by the Office of Research and Graduate Studies, an applicant must hold a **E D F K HdegRehlm** i M a major in chemistry. Applicants are required to take the GRE general graduate school admission test and are strongly encouraged to take the chemistry subject exam. If English is not the applicant ¶ native language, he or she must also take the TOEFL English language proficiency test and achieve a minimum score of 80 on the Internet-based test. 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 (3.000 on a 4.000 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.

MASTER OF SCIENCE IN CHEMISTRY

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.

DOCTOR OF PHILOSOPHY IN CHEMISTRY

1. The student must complete the primary core courses: CHEM 6110, 6111, 6115, 6116, 6118, 6220. The student must then complete secondary core courses, depending on the selected track.

   Organic/Medicinal/Bioorganic Track: **CHEM 5393, 6113, 6119.**

   Materials/Polymer Track: **CHEM 5333, 6113, 6114.**

   Theoretical/Computational Track: **CHEM 6343, 6325.**

   Additional courses will be selected based on the student ¶ interest and research program and in consultation with the student ¶ adviser and faculty committee. A secondary core course may be subst(3)175(f t)-3(5ETqQBT1s9(f)157 185.7l)44(in)-2( )45o.52

5. The student will present a departmental seminar (50 to 60 minutes) (CHEM 7121) on a topic that is generally in bioorganic, materials or computational/theoretical 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 the department and graded by a faculty committee that includes the student §

CHEM 5310 is counted toward a chemistry major or minor, it cannot be counted toward a biological sciences major or minor.

CHEM 5311/BIOL 5311 (3). BIOLOGICAL CHEMISTRY: METABOLISM. Introduction to the pathways and regulatory events in the metabolism of carbohydrates, lipids, amino acids, and nucleotides. Includes 3 hours of lecture per week. *Prerequisites:* CHEM 3371, 3372.

CHEM 6049 (0). GRADUATE FULL-TIME STATUS. This course allows graduate students who have finished the required number of hours for the M.S. or Ph.D. degree to have access to library and computer facilities on campus. The student will be expected to be writing his/her research dissertation.

CHEM 6110 (1). CHEMICAL COMMUNICATIONS: LITERATURE, WRITING, AND PRESENTATIONS. Fundamentals of literature searching, scientific writing, oral and poster presentations, and research notebooks.

CHEM 6111 (1). PRACTICAL LABORATORY METHODS. Describes the theory behind and practice of laboratory techniques necessary to perform advanced synthetic chemical research.

CHEM 6112 (1). ADVANCED STEREOCHEMISTRY. Advanced study in molecular geometry and relationships in space between atoms and groups in a molecule.

EARTH SCIENCES

Roy M. Huffington Department of Earth Sciences

www.smu.edu/earthsciences

Professor **Robert Gregory,** Department Chair

Professors: **Robert Gregory, Bonnie Jacobs, Louis Jacobs, Zhong Luiu Ji uQ-24(BT/i)23k-5(oF4(i))17(uBT/r)**

THE COURSES (GEOL)

GEOL 5110 (1). INDEPENDENT STUDY IN GEOSCIENCE. **Independent study of a selected topic in geoscience. Individual study under direction of a faculty member allowed for GEOL 5110 or 5210; group projects allowed for GEOL 5310.**

GEOL 5166/BIOL 5166 (1). VERTEBRATE ANATOMY LABORATORY.

GEOL 7209 (2). RESEARCH IN MINERALOGY AND PETROLOGY. **Research project in a selected area of mineralogy and petrology.**

GEOL 7210 (2). RESEARCH IN MINERALOGY AND PETROLOGY. **Research project in a selected area of mineralogy and petrology.**

GEOL 7213 (2). RESEARCH IN GEOPHYSICS. **Research project in a selected area of geophysics.**

GEOL 7214 (2). RESEARCH IN GEOPHYSICS. **Research project in a selected area of geophysics.**

GEOL 7215 (2). RESEARCH IN GEOCHEMISTRY. **Research project in a selected area of geochemistry.**

GEOL 7216 (2). RESEARCH IN GEOCHEMISTRY. **Research project in a selected area of geochemistry.**

GEOL 7250 (2). SEMINAR IN PALEONTOLOGY. **Seminar on selected topics in paleontology, subject matter varies term to term.**

GEOL 7251 (2). SEMINAR IN STRATIGRAPHY. **Seminar on selected topics in stratigraphy; subject matter varies term to term.**

GEOL 7252 (2). SEMINAR IN SEDIMENTOLOGY. **Seminar on selected topics in sedimentology, subject matter varies term to term.**

GEOL 7253 (2). SEMINAR IN PETROLOGY.

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 Growc 0 0 1 36 a0 0 1 36 a8.824

ECO 5359 Microeconomic Development
ECO 5360 Economic Development
ECO 5375 Business and Economic Forecasting
ECO 5380 Computing for Economics
ECO 5385 Data Mining Techniques for Economists
ECO 6339 Topics in International Economics
ECO 6337 Emerging Markets
ECO 6352 Applied Econometric Analysis

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Nine hours (three courses) of free electives

The curriculum 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

ECO 5380 Computing for Economics

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

MASTER OF SCIENCE IN APPLIED ECONOMICS AND PREDICTIVE ANALYTICS

The M.S.A.E.P.A. is a new degree offered by the Department of Economics. The degree is designed to help meet the burgeoning demand for analytics training on the part of businesses, governments and nonprofits. This degree focuses on economic analysis and decision-making along with strong quantitative training, and brings additional skills not typically provided in analytics programs found in statistics, engineering or business programs. *Predictive analytics* refers to the process of building models that predict consumer behaviors under different circumstances and help customize product offerings that better suit the tastes and preferences of consumers; it also refers to building models to predict time series variables of importance to businesses and governments (e.g., product sales and tax revenues) and to evaluate competing government programs and business strategies. The M.S.A.E.P.A. is a 36 credit hour degree.

ECO 5350 Introductory Econometrics

ECO 6381 Economic Analysis I (microeconomics)

ECO 6382 Economic Analysis II (macroeconomics)

ECO 5375 Business and Economic Forecasting

ECO 5385 Data Mining Techniques for Economists

ECO 6303 Internship
ECO 6330 Exchange Rates and International Capital Markets
ECO 6331 International Trade
ECO 6333 Trade Policy and World Trading System
STAT 5304 SAS Programming
STAT 5340 Probability and Statistics for Scientists and Engineers
STAT 5371 Experimental Statistics I
STAT 6304 Computational Statistics

DOCTOR OF PHILOSOPHY IN ECONOMICS
Admission Requirements

The minimum requirements for admission are as follows:

1. Cumulative GPA of at least 3.000 (on a 4.000 scale).
2. Excellent scores on the aptitude parts (verbal and quantitative) of the GRE graduate school admission test.
3. A bachelor $'$ 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.
4. 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.
5.

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 research. 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 3.000. 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.**

THE COURSES (ECO)

General	ECO 5301, 5337, 5340, 5341, 5350, 5353, 5355, 5357, 5359, 5360, 5361, 5362, 5365, 5370, 5375, 5380, 5385, 5390, 6352
Economic Theory	ECO 6371, 6381, 6382, 6384, 6385, 6386, 6387, 6390, 6394, 6395, 6396, 7302
Advanced Theory	ECO 7305, 7306
International Economics	ECO 6330, 6331, 6333, 6339, 7332, 7333
International and Development Economics	ECO 6337, 7334

ECO 5340 (3). DECISION-MAKING UNDER UNCERTAINTY. Provides a basis for the modeling of decision-making under conditions of incomplete information. *Prerequisites:* C- or better in the following: ECO 3301, 3302 and STAT 2301, 2331, or 2340.

ECO 5341 (3). STRATEGIC BEHAVIOR. Introduces the basic concepts and tools of game theory, with applications to various areas of economics. The various topics are unified by the techniques employed for determining the outcome in particular situations. *Prerequisites:* Graduate standing or C- or better in the following: ECO 3301 and STAT 2301, 2331, or 4340.

ECO 5342 (3). EXPERIMENTAL AND BEHAVIORAL ECONOMICS. Students study the field of behavioral economics in which the underlying assumptions of economics models are tested using experimental techniques. Guided by behavioral regularities, new models of behavior are introduced. *Prerequisite:* C- or better in ECO 3301. *Recommended:* ECO 5341, 5350.

ECO 5350/STAT 5350 (3). INTRODUCTORY ECONOMETRICS. The basic concepts of econometrics and, in particular, regression analysis, with topics geared to first-time regression users. *Prerequisites:* Graduate standing or C- or better in the following: MATH 1309 or 1337; ECO 3301; and ITOM 2305 or STAT 2301, 2331, or 4340.

ECO 5353 (3). LAW AND ECONOMICS. Examines economic theories that explain the development of common law and constitutional law and the economic implications of contracts, antitrust laws, and liability rules. *Prerequisites:* Graduate standing or C- or better in the following: ECO 3301 and STAT 2301, 2331, or 4340.

ECO 5357 (3). ECONOMICS OF HUMAN RESOURCES. Examines several topics of interest to modern labor economists. The course is equally devoted to theoretical modeling and the interpretation of empirical evidence, and to the analysis of policies such as education subsidies, unemployment insurance, the minimum wage, and immigration restrictions. *Prerequisites:* Graduate standing or C- or better in the following: ECO 3301 and STAT 2301, 2331, or 4340. ECO 4351 is recommended.

Cognos. *Prerequisites:* Graduate standing or C- or better in the following: ECO 3301, 3302, and 5350; MATH 1309 or 1337; and ITOM 2305 or STAT 2301, 2331, or 4340.

ECO 5385/STAT 5380 (3). PREDICTIVE ANALYTICS FOR ECONOMISTS. A study of data-mining techniques used by economists in the fields of applied economics, marketing, finance, and statistics. These techniques include classification methods, affinity analysis, and data reduction and exploration methods. *Prerequisites:* Graduate standing or C- or better in the following: ECO 5350, and ITOM 2305 or STAT 2301, 2331, or 4340.

ECO 5390 (3). MATHEMATICAL FINANCE: THEORY AND APPLICATIONS. A study of selected topics in finance (such as capital asset pricing, options and their valuation, analytics of credit derivatives) that combines theory with actual applications in the financial profession. *Prerequisite:* C- or better in ECO 5350, ECO 4378 or FINA 4326, ECO 4368 or FINA 4325, and one of the following: STAT 2301, 2331, or 4340.

ECO 6049 (0). GRADUATE FULL-TIME STATUS. Full-time status for M.A. students.

ECO 6101 (1). INTERNSHIP FOR M.A. STUDENTS. Eligible students will analyze economics problems appropriate to the interning firm or organization. This course can only be taken twice. *Prerequisite:* 3.000 GPA in economics classes and approval of faculty sponsor and director of graduate studies.

ECO 7306 (3). ADVANCED ECONOMIC THEORY. A variety of advanced topics in theory not covered in the core theory sequence.

ECO 7321 (3). LABOR ECONOMICS. Theories and empirical testing of hypotheses concerning the behavior of labor markets.

ECO 7322 (3). DEVELOPMENT OF HUMAN CAPITAL. Theories concerned with the investment in human capital and its impact on economic growth.

ECO 7332 (3). INTERNATIONAL MACROECONOMIC THEORY AND POLICY. Concepts of balance of payments equilibrium; responses to disequilibrium; national economic policies affecting international payments; and past, present, and proposed international financial institutions.

ECO 7333 (3). INTERNATIONAL TRADE. Determinants of regional specialization, gains from trade, theoretical analysis of factor movements, and of policies affecting the interspatial movement of goods and persons.

ECO 7334 (3). DEVELOPMENT ECONOMICS. Application of economic theory to developing economies, including population and household economies, agriculture, industry, international trade and factor movements, and investment project evaluation.

ECO 7341 (3). MARKET STRUCTURE.

ENGLISH

Associate Professor **Nina Schwartz,** Department Chair

Professors: Timothy Crusius, Dennis Foster (Director of Graduate Studies), Ezra Greenspan, David Haynes (Director of Creative Writing), Ross Murfin, Jasper Neel, Willard Spiegelman, Steven Weisenburger. Associate Professors: Richard Bozorth, Darryl Dickson-Carr, Michael Holahan, Beth Newman, Timothy Rosendale (Director of Undergraduate Studies), Lisa Siraganian, Nina Schwartz, Rajani Sudan, Bonnie Wheeler. Assistant Professors: Angela Ards, Greg Brownderville, Timothy Cassedy, Daniel Moss, Jayson Gonzales Sae-Saue, Martha Satz. Professors of Practice: Joan Arbery, Cara Diaconoff,

teach two courses a year for four years beginning in the second year of study, with

ENGL 6375 (3). 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.

ENGL 6380 (3). HISTORY OF PRINT CULTURE. A literary historical survey of major developments, issues, formations, and institutions in British and/or American print culture.

ENGL 6391 (3). POETRY WRITING WORKSHOP. Graduate level writing and critiquing of student poetry, along with the study of poetic conventions, techniques, and theory.

ENGL 6392 (3). FICTION WRITING WORKSHOP. Graduate level writing and critiquing of student fiction writing along with the study of the conventions, techniques, and theories of fiction.

ENGL 63

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their written work and official transcripts. Three letters of recommendation are also required. In addition, applicants should possess a foundation in a language for research, usually Spanish, sufficient to enable them to pass an examination in translation to English in September of the first year of study. Prospective students must submit their applications and all supporting documents by December 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 (U.S.) History. (24 credits) The major field in American history offers broad preparation. During the first two years, students 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 other 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 American Southwest, the U.S. West, Mexico, Hispanic America, Borderlands, Mexican Americans and Native Americans. (12 credits) Students will develop a specialized field in history by taking a minimum of 12 credits of coursework in any combination of the above areas. For example, students who have completed a research seminar and colloquium on Mexico might take six additional credits in southwestern history (including Mexican-American and Native-American history); whereas students who have completed a seminar and colloquium in the

Topics may include urbanization, migration, industrialization, revolution, slavery and gender roles.

Ph.D. Research Paper Requirement. Students will write two substantial research papers during the first two years of study. 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 three fields of concentration will be taken in the spring term of the third year of study.

Teaching Practicum.

HIST 5364 (3). THE CITY OF GOD IN ITS MILIEU. An examination of St. Augustine's masterpiece, along with several of its models and analogues from the Greco-Roman and Hebrew traditions.

HIST 5367 (3). RUSSIA FROM THE KIEVAN ERA TO 1881. Surveys the development of state and society from the beginnings of history in East Slavic territory through the Era of the Great Reforms.

HIST 5370 (3). SEMINAR IN FRENCH HISTORY. An examination of key historians and of the several modes of historiographical writing that shape the vision of premodern France.

HIST 5371 (3). THE FRENCH REVOLUTION AND NAPOLEON, 1789–1815. The nature and causes of revolution, the French Revolution, and the career of Napoleon Bonaparte.

HIST 5374 (3). RECENT EUROPEAN HISTORY: 1918 TO THE 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.

HIST 5375 (3). EUROPE IN THE AGE OF LOUIS XIV. The scientific revolution, the culture of the Baroque era, and development of the European state system under the impact of the Thirty Years' War and the wars of Louis XIV.

HIST 5376 (3). EUROPE AGE OF 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.

HIST 5377 (3). THE UNITED STATES AND THE COLD WAR. History of the U.S. and the Cold War.

HIST 5382 (3). SEMINAR IN LATIN-AMERICAN HISTORY. Intensive examination of major topics in Latin-American history.

HIST 5387 (3). SEMINAR IN AFRICAN HISTORY. Intensive examination of special topics in African history.

HIST 5390 (3). SEMINAR IN RUSSIAN HISTORY. This advanced seminar covers selected topics in late imperial Russian and Soviet history. *Prerequisite:* HIST 3340 or 3341, or permission of instructor.

HIST 5391 (3). ATHENIAN DEMOCRACY. This seminar will examine the development of democratic government in Athens and study the functioning of that government in peace and in war.

HIST 5392 (3). SEMINAR IN EUROPEAN HISTORY. Intensive examination of major topics in European history. *Prerequisite:* Junior standing or permission of instructor.

HIST 5395 (3). A HISTORY OF IRAN. This seminar aims to introduce students to the history, cultures, and peoples of Iran and familiarize them with this complex and increasingly important country.

HIST 5397 (3). SEMINAR IN ASIAN HISTORY. Intensive examination of major topics in Asian history.

HIST 6000 (0). RESEARCH. Investigation in primary historical 0( )]TJETBT1 0 0[d1 168.17 34.5 0 0 1 136.(

HIST 6305 (3). COLLOQUIUM: HISPANIC SOUTHWEST. This readings seminar 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.

HIST 6308 (3). SEMINAR IN AMERICAN HISTORY. An examination of major topics in American history.

HIST 6309 (3). SEMINAR IN NORTH AMERICAN BORDERLANDS. Study of the historiography of the social interactions among varied peoples along the native, imperial, and national

HIST 6355 (3). PROBLEMS IN LATIN-AMERICAN HISTORY. **Selected topics in Latin-American history from the age of exploration and discovery to the mid-20th century.**

HIST 6356 (3). PROBLEMS IN LATIN-AMERICAN HISTORY. **Selected topics in Latin-American history from the age of exploration and discovery to the mid-20th century.**

HIST 6357 (3). PROBLEMS IN MEXICAN HISTORY. **Major themes in the evolution of Mexican society and the place of Mexico in the history of the Americas.**

HIST 6363 (3). AMERICAN CIVIL WAR AND RECONSTRUCTION. **The nature, causes, and impact of the American Civil War, with emphasis on current historiographical issues.**

HIST 6370 (3). COLLOQUIUM: EUROPEAN HISTORY. **A readings course covering the major problems in European history. Contact the department for more information.**

HIST 6371 (3). COLLOQUIUM: EUROPEAN HISTORY. **A readings course covering the major problems in European history. Contact the department for more information.**

HIST 6372 (3). THE APOTHEOSIS OF CAESAR AND THE FALL OF THE ROMAN REPUBLIC. **This research seminar investigates the fall of the Roman Republic and the rise of the Empire as a direct consequence of the life and death of Julius Caesar.**

HIST 6385 (3). PROBLEMS IN BRITISH HISTORY.

HIST 6386 (3). PROBLEMS IN BRITISH HISTORY.

HIST 6387 (3). TOPICS IN AFRICAN HISTORY.

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tion courses in computational and applied mathematics and presentation of a paper (usually based on a reading course with a faculty member).

THE COURSES (MATH)

MATH 5315 (3). 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. Student use of the computer is emphasized. *Prerequisites:* MATH 2343, and MATH 3315/CSE 3365 or MATH 3316; a programming course (e.g., C, FORTRAN, or MATLAB).

MATH 5316 (3). INTRODUCTION TO MATRIX COMPUTATION. The efficient solution of dense and sparse linear systems, least squares problems, and eigenvalue problems. Elementary and orthogonal matrix transformations provide a unified treatment. Programming is in MATLAB, with a focus on algorithms. *Prerequisites:* MATH 3353; MATH 3315/CSE 3365 or MATH 3316.

MATH 5331 (3). FUNCTIONS OF A COMPLEX VARIABLE. Complex numbers, analytic functions, mapping by elementary functions, and 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:* C- or higher in MATH 3337.

MATH 5332 (3). WAVELET TRANSFORMS. A mathematical introduction to sampling, data compression, multiresolution analysis, Fourier analysis, and wavelet theory, including biorthogonal wavelets and spline wavelets. *Prerequisites:* C- or higher in MATH 3315/CSE 3365 and in MATH 3337, 3353.

MATH 5334 (3). INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS. Elementary partial differential equations of applied mathematics: heat, wave, and Laplace ¶equations. Topics include physical derivations, separation of variables, Fourier series, Sturm-Liouville eigenvalue problems, and Bessel functions. *Prerequisite:* C- or higher in MATH 3337.

MATH 5353 (3). LINEAR ALGEBRA. Spectral theory of Hermitian matrices, Jordan normal form, Perron-Frobenius theory, and convexity. Applications include image compression, Internet page ranking methods, optimization, and linear programming. *Prerequisite:* C- or better in MATH 3353.

MATH 6110 (1). MATHEMATICS RESEARCH. Independent research project in the fields of computational and applied mathematics, under the direction of a faculty member.

MATH 6210 (2). MATHEMATICS RESEARCH. Independent research project in the fields of computational and applied mathematics, under the direction of a faculty member.

MATH 6310 (3). MATHEMATICS RESEARCH. Independent research project in the fields of computational and applied mathematics, under the direction of a faculty member.

MATH 6311 (3). PERTURBATION METHODS. Solving differential equations with a small parameter by asymptotic techniques: weakly nonlinear oscillators, perturbed eigenvalue problems, boundary layers, method of multiple scales, WKBJ method. *Prerequisite:* MATH 2343 (MATH 5334 also recommended).

MATH 6312 (3). ADVANCED ASYMPTOTIC AND PERTURBATION METHODS. Topics include strongly nonlinear and slowly varying oscillators, multiple scales and matched asymptotic expansions applied to partial differential equations, asymptotic evaluation of integrals and transforms, stationary phase, steepest descents, and applications. *Prerequisites:* MATH 5334, 6311.

MATH 6313 (3). ASYMPTOTIC EXPANSIONS AND INTEGRALS. Fourier and Laplace transforms. Asymptotic expansions with applications to integrals. Topics include integration by parts, Watson ¶lemma, Laplace ¶method, stationary phase, steepest descents, and uniform expansions. Applications and examples from physical problems. *Prerequisite:* MATH 5331.

MATH 6315 (3). NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS. Finite difference methods for elliptic, parabolic, and hyperbolic problems in partial differential equations. Stability, consistency, and convergence results are given. Attention is given to computer implementations. *Prerequisites:* MATH 5315/CSE 5365/CSE 7365 and MATH 5334.

MATH 6316 (3). NUMERICAL LINEAR ALGEBRA. The efficient solution of dense and sparse linear systems, least squares problems and eigenvalue problems. Elementary and orthogonal matrix transformations provide a unified treatment. In addition to algorithm development, the course will emphasize the theory underlying the methods. *Prerequisite:* MATH 5315 or CSE

MATH 6347 (3). VORTEX DYNAMICS. **Vorticity transport equation. Rectilinear vorticies as Hamiltonian system. Elliptical vortices-moment model. Vortex rings. Swirling flows. Vortices near boundaries. Pairing. Reconnection.** *Prerequisites:* MATH 5331, MATH 6324, and MATH 5315 or CSE 7365. (MATH 6336 useful but not essential)

MATH 6348 (3). TURBULENCE IN FLUIDS. **A mathematical introduction to turbulence - the last great problem of classical physics according to Feynman. Kolmogorov ¶ 1941 theory, closures theories, shell models, similarity theories.** *Prerequisites:* MATH 6324, MATH 5315 or CSE 7365, MATH 5331, MATH 5332 (or MATH 5334). (MATH 6336 useful, not necessary)

MATH 6350 (3). MATHEMATICAL MODELS IN BIOLOGY. **The mathematical analysis and modeling of biological systems, including biomedicine, epidemiology and ecology.** *Prerequisite:* Consent of instructor.

MATH 6352 (3). EPIDEMIOLOGY AND IMMUNOLOGY. **Modeling and analysis of diseases from epidemiology and immunology. Considers disease dynamics modeled with delay, integral, partial, and stochastic differential equations based on susceptible-infectious-removed ODEs.** *Prerequisites:* MATH 5334, 6324.

MATH 6360 (3). COMPUTATIONAL ELECTROMAGNETICS.

MEDIEVAL STUDIES

Associate Professor **Bonnie Wheeler,** Director

MASTER OF ARTS IN MEDIEVAL STUDIES

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 upo

ENGL 6320 Medieval Literature (medieval literary-cultural history through 1500)
ENGL 6321, 6322 Readings in Medieval Literature
FREN 5320 Literary Periods (when applicable)
FREN 5370 Seminar in French Literature (when applicable)
HIST 5364 City of God: Utopias in Christian Tradition
HIST 5370 Seminar in French History: History of France I (Paleolithic ±1461)
HIST 5378 Medieval Renaissances
HIST 6349, 6350 Problems in Medieval History
HIST 6352 Problems in Medieval Spanish History
HIST 6385 Problems in British History (when applicable)
MDVL 5301, 5302, 5398, 5399 Independent Studies
MDVL 6398, 6399 Thesis
SPAN 5310 Spanish Literature Before 1700

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

HX 7342 Passion-ate Spirituality
HX 8308 Varieties of Medieval

MDVL 6049 (0). GRADUATE FULL-TIME STATUS. A noncredit, independent course for students continuing work on an M.A. thesis.

MDVL 6308 (3). TOWNS, TRADE, AND REVOLUTION IN THE MEDIEVAL WEST. This course investigates the medieval city from its origins through 1500. Within a chronological framework, students explore urban populations and institutions, commerce, universities, guilds, and the Black Death.

MDVL 6318 (3). BYZANTINE HISTORY, 285–1453. This course traces the outlines of Byzantine history from 285 to 1453. Topics include the changing structure of the family, gender roles, ruler and ruled, and town and country.

MDVL 6398 (3). THESIS. Research and writing the M.A. thesis with guidance from the stu- G H Q W ¶ V W K H V L V G L U H F W R U

MDVL 6399 (3). THESIS. Research and writing the M.A. thesis with guidance from the stu- G H Q W ¶ V W K H V L V G L U H F W R U

PHYSICS

Professor **Fred Olness,** Department Chair

Professors: **Fred Olness, Ryszard Stroynowski, Jingbo Ye.** Associate Professors: **Thomas Coan, Jodi Cooley-Sekula, Kent Hornbostel, Robert Kehoe, Tiankuan Liu, Pavel Nadolsky, Roberto Vega.** Assistant Professor: **Stephen Sekula.** Senior Lecturers: **Simon Dalley, Randall Scalise.** Emeritus Professors: **Jeff Chalk, George Crawford, Vigdor Teplitz.**

MASTER OF SCIENCE IN PHYSICS

Students enrolled in the M.S. in physics program in physics must complete either 33 term hours of approved graduate coursework or 30 term hours of courses, including a research thesis. Every V W X G H Q W ¶ V G H J U H H S O D Q P X V W F R Q W 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.

DOCTOR OF PHILOSOPHY IN PHYSICS

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, conducted by the dissertation committee, near the end of the second year of the program. Upon passing this examination and with completion of the required coursework, the student formally is classified as a Ph.D. candidate.

THE COURSES (PHYS)

PHYS 5161 (1). SELECTED TOPICS IN PHYSICS FOR HIGH SCHOOL TEACHERS. Additional information is available from the department.

PHYS 5337 (3). INTRODUCTION TO SOLID STATE PHYSICS. Crystal lattices and the reciprocal lattice, the free-electron model of metals, crystal binding, lattice vibrations phonons,

PHYS 7315 (3). QUANTUM FIELD THEORY II. Path integral formulation; renormalization group; symmetry structure; formal aspects; nonabelian gauge theories. *Prerequisite:* PHYS 7314 or permission of instructor.

PHYS 7321 (3). 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; magnetics properties of atoms. *Prerequisites:* PHYS 6336 or working knowledge of quantum mechanics and permission of instructor.

PHYS 7330 (3). PHYSICS OF QUANTUM ELECTRONICS. Interactions of electromagnetic radiation with atomic systems; absorption and dispersion, line-broadening mechanisms, amplification. Quantum theory of light scattering: Rayleigh, Raman, and Brillouin scattering. Theory of lasers. Coherent pulse propagation. Nonlinear optical processes. *Prerequisites:* PHYS 6336, or working knowledge of quantum mechanics, and permission of instructor.

PHYS 7341 (3). THEORETICAL NUCLEAR PHYSICS. Properties of nuclear forces; many-body theory of nuclear models; analysis of scattering experiments. Interaction between nucleons and radiation; pion physics; weak interactions. *Prerequisites:* PHYS 6336 and 6341.

PHYS 7350 (3). GENERAL RELATIVITY. 53())6(.)-8( )9(G)-3(EN)-6(ERAL)8( )-9(R)4(EL)5(AT)-22(I)-9(\

4. Review Article (Third Research Benchmark)

   To demonstrate in-depth knowledge of their research area and to demonstrate their capability to interpret and synthesize theories and data in this area, 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 middle of their third year (January 15). Students are encouraged to consult articles by Bem (1995), *Psychological Bulletin,* 118, 172 ± ³ : U L W L Q J D 5 H Y L Lh Z $ U W L F *chological Bulletin*), and Maxwell and Cole (1995), *Psychological Bulletin,* 118, 193 ± R Q ³ 7 L S V I R U : U L W L Q J D Q G 5 H D G L Q J 0 H W K R G

   Students must form a committee to approve the review article. The committee must consist of at least two faculty members (with one b H L Q J W K H V W X G H Q W ' V faulty adviser).

5. Dissertation (Fourth Research Benchmark)

   The dissertation is an original empirical research project with the potential to contribute to the knowledge base in the area of clinical psychology. Before a student can officially begin) oulty aaadigin)iSt(d)-2(e5859.58 Tm(m)-5(u))ill)6( )58()20

Required Courses. The following courses (45 hours) are required:

PSYC 6091–6098 Integrated Practicum Seminar
PSYC 6305, 6307 Quantitative Methods I, II
PSYC 6311 Seminar in Social Psychology
PSYC 6312 Seminar in Developmental Psychology
PSYC 6314 Seminar in Adult Psychopathology

ment, experimental and quasi-experimental designs, causal inference, interpretation of data, and research ethics.

PSYC 6330 (3). SEMINAR IN PSYCHOPHARMACOLOGY. Introduces psychotropic drugs and their uses, with a focus on the relationship between psychology and psychiatry in practice.

PSYC 6331 (3). PSYCHOTHERAPY PRACTICUM I. Combined didactic/lecture and laboratory practicum experience for second-year graduate students. Emphasis is placed on assessment of and brief psychotherapy for medical patients in the Baylor Hospital Trauma Unit.

PSYC 6332 (3). PSYCHOTHERAPY PRACTICUM II. Continuation into the second term of a combined didactic/lecture and laboratory practicum experience for second-year graduate students. Emphasis is placed on assessment of and brief psychotherapy for medical patients in the Baylor Hospital Trauma Unit.

PSYC 6334 (3). SEMINAR IN DEVELOPMENTAL PSYCHOPATHOLOGY. Advanced seminar examining theories and data on psychopathology in childhood and adolescence.

PSYC 6340 (3). PSYCHOBIOLOGY OF EMOTION. This course will provide students an empirically-based foundation in the psychobiology processes involved in human emotion, including anger, fear, anxiety, and depression. These will serve as important foundations underlying interventions for clinically elevated levels of these emotions.

PSYC 6351 (3). THEORIES AND METHODS OF PSYCHOTHERAPY. Discussion of research concerning the efficacy and effectiveness of individual psychotherapy; discussion about and training in the major theoretical methods of individual psychotherapy; ethics of individual psychotherapy. Open to psychology graduate students only.

PSYC 6353 (3). 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, intelligence, and behavior. The focus throughout is on the integration of diverse sources of data to better inform psychodiagnostic decision-making. Open to psychology graduate students only.

PSYC 6354 (3). ASSESSMENT PRACTICUM. Assessment Practicum is the on-campus practicum course for Ph.D. students to learn to administer and interpret cognitive, achievement, personality, and behavioral psychological tests, conduct feedback sessions, and generate appropriate reports. Instructor consent and Ph.D. student status required.

PSYC 6355 (3). METHODS OF PSYCHOTHERAPY/ASSESSMENT. Emphasizes fundamental clinical skills of interviewing and diagnostic assessment.

PSYC 6356 (3). THEORIES AND METHODS OF COUPLE AND FAMILY THERAPY. Introduction to theories of marriage, family, and divorce counseling. Also, research on these approaches, with a focus on the types of interaction between spouses and between family members.

PSYC 6357 (3). SEMINAR IN INTERVIEWING SKILLS. This is a three-hour credit course designed for Ph. D. and M.A. students in psychology. Students will be taught interviewing techniques, basic supportive counseling skills, and effective communication and planning of clinical therapy sessions. This course will employ didactic and experiential methods of instruction.

PSYC 6360 (3). ETHICS IN PSYCHOLOGY. Reviews the current ethical code of conduct followed by professional psychologists. Ethical principles will be discussed in terms of their legal, social, and philosophical relevance.

PSYC 6361 (3). ASSESSMENT PRACTICUM II. Second term of an on-campus practicum course for Ph.D. students to learn to administer and interpret a variety of psychological tests, conduct feedback sessions, and generate reports based upon these assessments.

PSYC 6362 (3). ADVANCED SPECIAL TOPICS. An advanced seminar on selected topics in various sub-areas of psychological research.

PSYC 6371 (3). RESEARCH ON PSYCHOLOGY. Supervised individual empirical research on selected problems. A research proposal must be s

PSYC 6398 (3). THESIS. Academic credit for design, data collection, analysis, and writing of student master's thesis.

PSYC 7091 (0). PRACTICUM IN PSYCHOLOGY. Students conduct psychological assessments and interventions in a field placement under the direct supervision of an approved supervisor.

PSYC 7092 (0). PRACTICUM IN PSYCHOLOGY. Students conduct psychological assessments and interventions in a field placement under the direct supervision of an approved supervisor.

PSYC 7093 (0). PRACTICUM IN PSYCHOLOGY. Students conduct psychological assessments and interventions in a field placement under the direct supervision of an approved supervisor.

PSYC 7094 (0). PRACTICUM IN PSYCHOLOGY. Students conduct psychological assessments and interventions in a field placement under the direct supervision of an approved supervisor.

PSYC 7095 (0). PRACTICUM IN PSYCHOLOGY. Students conduct psychological assessments and interventions in a field placement under the direct supervision of an approved supervisor.

PSYC 7096 (0). PRACTICUM IN PSYCHOLOGY. Students conduct psychological assessments and interventions in a field placement under the direct supervision of an approved supervisor.

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OT 8325 **The Message of the Prophets**

OT 8345 **Contemporary Approaches to the Hebrew Bible**

OT 8351 **Major Motifs of Biblical Theology**

ST 8311 **Contemporary Theology**

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RELI 7306 (3). PHILOSOPHY OF RELIGION VII. Special topics in philosophy of religion.
RELI 7307 (3). PHILOSOPHY OF RELIGION VIII. Special topics in philosophy of religion.
RELI 7308 (3). PHILOSOPHY OF RELIGION IX. Special topics in philosophy of religion.
RELI 7309 (3). PHILOSOPHY OF RELIGION X. Special topics in philosophy of religion.
RELI 7310 (3). PHILOSOPHICAL THEOLOGY I. Special topics in philosophical theology.
RELI 7311 (3). PHILOSOPHICAL THEOLOGY II. Special topics in philosophical theology.
RELI 7312 (3). PHILOSOPHICAL THEOLOGY III. Special topics in philosophical theology.
RELI 7313 (3). PHILOSOPHICAL THEOLOGY IV. Special topics in philosophical theology.
RELI 7314 (3). PHILOSOPHICAL THEOLOGY V. Special topics in philosophical theology.
RELI 7315 (3). PHILOSOPHICAL THEOLOGY VI. Special topics in philosophical theology
RELI 7316 (3). PHILOSOPHICAL THEOLOGY VII. Special topics in philosophical theology.
RELI 7317 (3). PHILOSOPHICAL THEOLOGY VIII. Special topics in philosophical theology.
RELI 7318 (3). PHILOSOPHICAL THEOLOGY IX. Special topics in philosophical theology.
RELI 7319 (3). PHILOSOPHICAL THEOLOGY X. Special topics in philosophical theology.
RELI 7320 (3). RELIGION AND CULTURE I. Special topics in religion and culture.
RELI 7321 (3). RELIGION AND CULTURE II. Special topics in religion and culture.
RELI 7322 (3). RELIGION AND CULTURE III. Special topics in religion and culture.
RELI 7323 (3). RELIGION AND CULTURE IV. Special topics in religion and culture.
RELI 7324 (3). RELIGION AND CULTURE V. Special topics in religion and culture.
RELI 7325 (3). RELIGION AND CULTURE VI. Special topics in religion and culture.
RELI 7326 (3). RELIGION AND CULTURE VII. Special topics in religion and culture.
RELI 7327 (3). RELIGION AND CULTURE VIII. Special topics in religion and culture.
RELI 7328 (3). RELIGION AND CULTURE IX. Special topics in religion and culture.
RELI 7329 (3). RELIGION AND CULTURE X. Special topics in religion and culture.
RELI 7330 (3). RELIGION AND CULTURE XI. Special topics in religion and culture.
RELI 7331 (3). RELIGION AND CULTURE XII. Special topics in religion and culture.
RELI 7332 (3). RELIGION AND CULTURE XIII. Special topics in religion and culture.
RELI 7333 (3). RELIGION AND CULTURE XIV. Special topics in religion and culture.
RELI 7334 (3). RELIGION AND CULTURE XV. Special topics in religion and culture.
RELI 7335 (3). HISTORY OF CHRISTIANITY I. Special topics in history of Christianity.
RELI 7336 (3). HISTORY OF CHRISTIANITY II. Special topics in history of Christianity.
RELI 7337 (3). HISTORY OF CHRISTIANITY III. Special topics in history of Christianity.
RELI 7338 (3). HISTORY OF CHRISTIANITY IV. Special topics in history of Christianity.
RELI 7339 (3). HISTORY OF CHRISTIANITY V. Special topics in history of Christianity.
RELI 7340 (3). HISTORY OF CHRISTIANITY VI. Special topics in history of Christianity.
RELI 7341 (3). HISTORY OF CHRISTIANITY VII. Special topics in history of Christianity.
RELI 7342 (3). HISTORY OF CHRISTIANITY VIII. Special topics in history of Christianity.
RELI 7343 (3). HISTORY OF CHRISTIANITY IX. Special topics in history of Christianity.
RELI 7344 (3). HISTORY OF CHRISTIANITY X. Special topics in history of Christianity.
RELI 7345 (3). HISTORY OF CHRISTIANITY XI. Special topics in history of Christianity.
RELI 7346 (3). HISTORY OF CHRISTIANITY XII. Special topics in history of Christianity.
RELI 7347 (3). HISTORY OF CHRISTIANITY XIII. Special topics in history of Christianity.
RELI 7348 (3). HISTORY OF CHRISTIANITY XIV. Special topics in history of Christianity.
RELI 7349 (3). HISTORY OF CHRISTIANITY XV. Special topics in history of Christianity.
RELI 7350 (3). SYSTEMATIC THEOLOGY I. Special topics in systematic theology.
RELI 7351 (3). SYSTEMATIC THEOLOGY II. Special topics in systematic theology.
RELI 7352 (3). SYSTEMATIC THEOLOGY III. Special topics in systematic theology.

RELI 7353 (3). SYSTEMATIC THEOLOGY IV. **Special topics in systematic theology.**
RELI 7354 (3). SYSTEMATIC THEOLOGY V. **Special topics in systematic theology.**
RELI 7355 (3). SYSTEMATIC THEOLOGY VI. **Special topics in systematic theology.**
RELI 7356 (3). SYSTEMATIC THEOLOGY VII. **Special topics in systematic theology.**
RELI 7357 (3). SYSTEMATIC THEOLOGY VIII. **Special topics in systematic theology.**
RELI 7358 (3). SYSTEMATIC THEOLOGY IX. **Special topics in systematic theology.**
RELI 7359 (3). SYSTEMATIC THEOLOGY X. **Special topics in systematic theology.**
RELI 7360 (3). SYSTEMATIC THEOLOGY XI. **Special topics in systematic theology.**
RELI 7361 (3). SYSTEMATIC THEOLOGY XII. **Special topics in systematic theology.**
RELI 7362 (3). SYSTEMATIC THEOLOGY XIII. **Special topics in systematic theology.**
RELI 7363 (3). SYSTEMATIC THEOLOGY XIV. **Special topics in systematic theology.**
RELI 7364 (3). SYSTEMATIC THEOLOGY XV. **Special topics in systematic theology.**
RELI 7365 (3). RELIGIOUS ETHICS I. **Special topics in religious ethics.**
RELI 7366 (3). RELIGIOUS ETHICS II. **Special topics in religious ethics.**
RELI 7367 (3). RELIGIOUS ETHICS III. **Special topics in religious ethics.**
RELI 7368 (3). RELIGIOUS ETHICS IV. **Special topics in religious ethics.**
RELI 7369 (3). RELIGIOUS ETHICS V. **Special topics in religious ethics.**
RELI 7370 (3). RELIGIOUS ETHICS VI. **Special topics in religious ethics.**
RELI 7371 (3). RELIGIOUS ETHICS VII. **Special topics in religious ethics.**
RELI 7372 (3). RELIGIOUS ETHICS VIII. **Special topics in religious ethics.**
RELI 7373 (3). RELIGIOUS ETHICS IX. **Special topics in religious ethics.**
RELI 7374 (3). RELIGIOUS ETHICS X. **Special topics in religious ethics.**
RELI 7375 (3). RELIGIOUS ETHICS XI. **Special topics in religious ethics.**
RELI 7376 (3). RELIGIOUS ETHICS XII. **Special topics in religious ethics.**
RELI 7377 (3). RELIGIOUS ETHICS XIII. **Special topics in religious ethics.**
RELI 7378 (3). RELIGIOUS ETHICS XIV. **Special topics in religious ethics.**
RELI 7379 (3). RELIGIOUS ETHICS XV. **Special topics in religious ethics.**
RELI 7380 (3). OLD TESTAMENT I. **Special topics in Old Testament.**
RELI 7381 (3). OLD TESTAMENT II. **Special topics in Old Testament.**
RELI 7382 (3). OLD TESTAMENT III. **Special topics in Old Testament.**

RELI 8049 (0). GRADUATE FULL-TIME STATUS. Indicates student has full-time status.

RELI 8100 (1). RESEARCH. Dissertation research.

RELI 8105 (1). RESEARCH.

RELI 8300 (3). STUDIES: HISTORY OF DOCTRINE. A cumulative examination of the basic doctrines and theologies that have shaped the Christian tradition. In the fall term the course will survey the formation of the patristic, Byzantine, and medieval Western theological traditions. In the spring term it will cover the late medieval and Reformation periods as well as selected developments of the Enlightenment era through Schleiermacher.

RELI 8301 (3). STUDIES HIST OF DOCTRINE. A cumulative examination of the basic doctrines and theologies that have shaped the Christian tradition. In the fall term the course will survey the formation of the patristic, Byzantine, and medieval Western theological traditions. In the spring term it will cover the late medieval and Reformation periods as well as selected developments of the Enlightenment era through Schleiermacher.

RELI 8320 (3). ADVANCED SYSTEMATIC THEOLOGY. An advanced investigation of selected problems in systematic theology. Topic to be announced when course is offered.

RELI 8321 (3). ADVANCED SYSTEMATIC THEOLOGY. An advanced investigation of selected problems in systematic theology. Topic to be announced when course is offered.

RELI 8340 (3). PENTATEUCH. Intensive study of selected texts and issues in the Pentateuch of the Old Testament. The specific texts or topics will be chosen in consultation with the students enrolled. Knowledge of biblical Hebrew is presupposed.

RELI 8341 (3). PENTATEUCH. Intensive study of selected texts and issues in the Pentateuch of the Old Testament. The specific texts or topics will be chosen in consultation with the students enrolled. Knowledge of biblical Hebrew is presupposed.

RELI 8342 (3). THE PROPHETS. Intensive study of selected texts and issues in the prophetic literature of the Old Testament. The specific texts or topics will be chosen in consultation with the students enrolled. Knowledge of biblical Hebrew is presupposed.

RELI 8350 (3). SEMINAR IN NEW TESTAMENT. A topical study of one or more literary, historical, or theological issues pertinent to the interpretation of the New Testament. Knowledge of Hellenistic Greek is presupposed. The specific topic(s) will be determined in consultation with the students enrolled.

RELI 8351 (3). SEMINAR IN NEW TESTAMENT. A topical study of one or more literary, historical, or theological issues pertinent to the interpretation of the New Testament. Knowledge of Hellenistic Greek is presupposed. The specific topic(s) will be determined in consultation with the students enrolled.

RELI 8352 (3). NEW TESTAMENT GOSPELS. Intensive study of selected texts and issues in the New Testament Gospels. The specific texts or topics will be chosen in consultation with the students enrolled. Knowledge of New Testament Greek is presupposed.

RELI 8353 (3). NEW TESTAMENT GOSPELS. Intensive study of selected texts and issues in the New Testament Gospels. The specific texts or topics will be chosen in consultation with the students enrolled. Knowledge of New Testament Greek is presupposed.

RELI 8354 (3). PAULINE EPISTLES. Intensive study of selected texts and issues in the Pauline Epistles. The specific texts or topics will be chosen in consultation with the students enrolled. Knowledge of New Testament Greek is presupposed.

RELI 8355 (3). PAULINE EPISTLES. Intensive study of selected texts and issues in the Pauline Epistles. The specific texts or topics will be chosen in consultation with the students enrolled. Knowledge of New Testament Greek is presupposed.

RELI 8356 (3). ADVANCED STUDY OF NEW TESTAMENT WRITINGS. Intensive study of selected texts and issues in such writings as the Catholic Epistles, Hebrews, and the Apocalypse. The specific texts or topics will be chosen in consultation with the students enrolled. Knowledge of New Testament Greek is presupposed.

RELI 8357 (3). ADVANCED STUDY OF NEW TESTAMENT WRITINGS. Intensive study of selected texts and issues in such writings as the Catholic Epistles, Hebrews, and the Apocalypse. The specific texts or topics will be chosen in consultation with the students enrolled. Knowledge of New Testament Greek is presupposed.

Professor

departmental faculty members. For at least one of these projects, written and oral presentations of the findings are required. A 4+1 option is available for obtaining the

Coursework will be completed in two years (four courses per term, with the final two years consisting primarily of research). In addition, as with the Ph.D. in statistical science, the student must

1. Pass the Comprehensive (Basic) Exams, typically at the end of the first year.
2. Pass the Ph.D. Qualifying Exam, typically taken at the end of the second year, which assesses the student's readiness for research.¶
3. Write and make a successful defense of the dissertation.

THE COURSES (STAT)

STAT 5304 (3). INTRODUCTION TO STATISTICAL COMPUTING. Introduces statistical computing, with an emphasis on SAS programming. Students learn how to read, write, and import data; prepare data for analysis; use SAS procedures; and create graphs. *Prerequisites:* STAT 1301, 2301, 2331 or equivalents.

STAT 5340/EMIS 7370 (3). PROBABILITY AND STATISTICS FOR SCIENTISTS AND ENGINEERS. Introduction to fundamentals of probability and distribution theory, 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.

STAT 5344/EMIS 7364/EMIS 5364 (3). STATISTICAL QUALITY CONTROL. Statistics and simple probability are introduced in terms of problems that arise in manufacturing; their application to control of manufacturing processes. Acceptance sampling in terms of standard sampling plans: MIL-STD 105, MIL-STD 414, Dodge-Romig plans, continuous sampling plans, etc. *Prerequisites:* STAT 4340 or STAT 5340.

STAT 5350/ECO 5350 (3). INTRODUCTORY ECONOMETRICS. The basic concepts of econometrics and, in particular, regression analysis, with topics geared to first-time regression users. *Prerequisites:* Graduate standing or C- or better in the following: MATH 1309 or 1337; ECO

STAT 6345 (3). 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 6320 and 6337.

STAT 6346 (3). ADVANCED REGRESSION ANALYSIS. Alternatives to least squares estimation. Theory and applications of generalized linear models. Estimation, asymptotic distribution theory, and tests for model parameters. Techniques for detecting influential observations, collinearities, and measurement error modeling. *Prerequisite:* STAT 6345 or permission of instructor.

STAT 6347 (3). SPLINE APPROXIMATION IN STATISTICS.

STAT 6350 (3). ANALYSIS OF LIFETIME DATA. Statistical theory and methodology for the analysis of lifetime data from complete and censored samples. Statistical lifetime distributions, types of censoring, graphical techniques, nonparametric/parametric estimation, and lifetime regression models. *Prerequisite:* STAT 6304, 6327, 6328, 6336, 6337, or equivalent.

STAT 6355 (3). APPLIED MULTIVARIATE ANALYSIS. Statistical methods of analysis of multivariate data, tests and estimation of multivariate normal parameters; Hotelling $T2$, discriminant analysis, canonical correlation, principal components, and factor analysis. Applications are emphasized. *Prerequisites:* STAT 6337 and 6320.

STAT 6358 (3). TOPICS IN BIOSTATISTICS. Introduction to various statistical methods that are widely used in the biosciences, especially biomedical research. Subject matter includes survival analysis, contingency tables, logistic regression, analysis of longitudinal data, design of clinical experiments, epidemiology, and statistical genetics; topics may vary with instructor. *Prerequisite:* STAT 6328 or permission of instructor.

STAT 6360 (3). STATISTICAL METHODS IN EPIDEMIOLOGY. Introduces epidemiologic principles and statistical methods used in biomedical research. Topics involve the design, analysis, and interpretation of biomedical study results. *Prerequisites:* STAT 5371, 5372, 5373, 5374, and 5304 (or equivalent) or consent of instructor.

STAT 6363 (3). TIME SERIES ANALYSIS. Statistical methods of analyzing time series. Auto-correlation function and spectrum. Auto

STAT 6376 (3). STOCHASTIC PROCESS. Random walk, Markov processes, Poisson processes, waiting times, spectral density functions, applications to random noise problems. *Prerequisite:* STAT 6327.

STAT 6377 (3). MULTIVARIATE CATEGORICAL DATA. Structural models for counting data: The general log-linear model for contingency tables is introduced along with likelihood-ratio tests, hierarchical models, and partitioning of likelihood-ratio statistics. *Prerequisites:* STAT 6328 and 6337, or permission of instructor.

STAT 6378 (3). MULTIVARIATE ANALYSIS. Theory and inference in the multivariate normal distribution. Regression, correlation, Wishart distribution, Hotelling $T2$, MANOVA and discriminant analysis. *Prerequisite:* STAT 6320, and 6328 or 6381.

STAT 6379 (3). INTRODUCTION TO MARKOV PROCESSES. Branching processes, recurrent events, random walk, finite Markov chains, simplest time-dependent stochastic processes. *Prerequisite:* STAT 6327 or 6370/CSE 6370.

STAT 6380 (3). MATHEMATICAL THEORY OF SAMPLING. Theoretical basis for estimation from simple random stratified, cluster, and two-stage designs. Also, ratio and regression estimators and nonsampling errors, including nonresponse. *Prerequisite:* STAT 6328.

STAT 6381 (3). 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, and 6320.

STAT 6382 (3). THEORY LINEAR MODELS II. Variance component models, mixed models, intrablock analysis, incomplete block designs and factorials, fractional replicates. *Prerequisite:* STAT 6381.

STAT 6385 (3). SURVEY OF NONPARAMETRIC STATISTICS. Topics include 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.

STAT 6386 (3). NONPARAMETRIC STATISTICS. Continuation of topics covered in STAT 6385, including linear rank statistics and asymptotic relative efficiency. Additional topics include U-statistics, robustness, M-estimation, minimum distance estimation, adaptive proce-

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